



KAPLAN MEDICAL

ANS

ANemia

KAPLAN MEDICAL

ANEMIA

KAPLAN MEDICAL

ANemia

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

ANEMIA

SYMPTOMS

Hg/
HCT

14

ANEMIA

SYMPTOMS

Hg/
HCT

Is

ANEMIA

SYMPTOMS

ANEMIA

SYMPTOMS

HCT

70

ANEMIA

SYMPTOMS

HCT

730-35 %

ANEMIA
Symptoms

HCT

730-35 %

25-30 Tired, fatigue

ANEMIA

SYMPTOMS

HCT

730-35 ϕ

25-30 Tired + fatigue

20-25 Dyspnea

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired + fatigued

20-25 Dyspnea

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired + fatigue

20-25 Dyspnea

<7

Anemia

Symptoms

HCT

730-35 ♂

25-30 Tired + fatigued

20-25 Dyspnea

<20 Confused

Diagnosis

ANEMIA

Symptoms

<35 g/dL

<30 Tired/Fatigue

Dyspnea

Excess

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired + fatigue

20-25 Dyspnea

<20 Confused

Die →

ANEMIA

SYMPTOMS

-35 %

30 Tired + fatigued

Dyspnea

Excessive

anemia

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

>30-35 %

25-30 Tired/Fatigue

20-25 Dyspnea

15-20 Confused

Die \Rightarrow Ischemia

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired, fatigued

20-25 Dyspnea

15-20 Chest pain

Ischemia

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired/Fatigue

20-25 Dyspnea

CONFUSED

Die > Ischemia

KAPLAN MEDICAL

ANEMIA

Symptoms

HCT

730-35 ✓

25-30 Tired + Fatigue

20-25 Dyspnea

<20 Confused

Die > Ischemia

ANEMIA
SYMPTOMS

HCT

730-35 ♂

25-30 Tired + fatigued

20-25 Dyspnea

<20 - Confused

Die > Ischemia

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired + fatigued

20-25 Dyspnea

<20 Confused

Die > Ischemia

Anemia

Symptoms

S/S
3Q Tired + fatigued
Dyspnea
Confused
hemio

KAPLAN MEDICAL

Anemia

SYMPTOMS

-35 %

30% Tired + fatigued

or Dyspnea

use of

hemio

ANEMIA

Symptoms

35%

30% Tired + fatigued

or Dyspnea

use of

phlo

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired + fatigued

20-25 Dyspnea

<20 Confused

Die Ischemia

ANEMIA

Symptoms

HCT

730-35 %

25-30 Tired + fatigued MCV

20-25 Dyspnea

10-15 Confused

Die \rightarrow Ischemia

ANEMIA

Symptoms

HCT

>30

25-30

20

<20

fatigue

weak

MCV \rightarrow high

low

KAPLAN MEDICAL

ANEMIA

Symptoms

→ High
B12/Fol

Tired/Fatigue

MCV normal

ANEMIA

→ Low

ANEMIA

SYMPTOMS

CT

30-35 %

25-30 Tired/Fatigue

20-25 Dyspnea

20 Confused

Die \Rightarrow Ischemia

\rightarrow High
B12/Folate
Liver (Alcohol)

MCV \rightarrow Normal

\rightarrow Low

Anemia

Symptoms

35%
30% Tired + Fatigue
or Dyspnea
use of
vial

→ High
B12 / Folate
Liver (Alcohol)

MCV → Normal

→ Low

ANEMIA

Symptoms

Tired + Fatigue
Dyspnea

→ High
B12 / Folate
Liver (Alcohol)

MCV →

→ Low

Anemia

Symptoms

Hyper-
Sess

→ High
B12 / Folate
Liver, Alcohol

CT

10-35

15-30

Tired +

Dist

MCV → Normal

He → Ischemia

→ Low

ANEMIA

Symptoms

Hypersegmented

→ high
B12 / Folate
liver, Alcohol

Hgb
73

25-

red fatigue

MCV = Normal

ANEMIA

Symptoms

Hypersegmented

→ High
B12 / Folate
Liver (Alcohol)

HCT

730-35

25-30 Tired + Fatigued

25-30 Dyspnea

25-30

HCV → Normal

7/10
KAPLAN MEDICAL

ANEMIA

SYMPTOMS

Hypersegmented

→ High
B12 / Folate
Liver, Alcohol

HCT

730-35 ♂

25-30 Tired + Fatigue

20-25 Dyspnea

<20 Confused

Die → Ischemia

MCV → Normal

→ Low

KAPLAN MEDICAL

ANEMIA

Symptoms

Hypersegmented

→ High
B12 / Folate
Liver, Alcohol

HCT

730-35

25-30

Microcytic

Mixed

Macrocytic

MCV → Normal

→ Low
Iron

KAPLAN MEDICAL

Anemia

Symptoms

Hypersegmented

→ High
B12 / Folate
Liver, Alcohol

HCT

30-35 ♂

25-30 Tired + Fatigue

20-25 Dyspnea

<20 Confused

Die → Ischemia

MCV → Normal

→ Low Sideroblastic
KAPLAN MEDICAL
Iron, Chronic
Thalassemia

ANEMIA

Symptoms

Hypersegmented

→ High
B12 / Folate
Liver, Alcohol

HCT

730-35

25-30 Tired + Fatigue

20-25 Dyspnea

<20 Confused

De → Ischemia

MCV → Normal

→ Low Sideroblastic
Iron, KAPLAN MEDICAL
Thalassemia

Anemia

Symptoms

Hypersegmented

→ High B12 / Folate
Liver, Alcohol

HCT

>30-35 %

25-30 Tired / Fatigue

20-25 Dyspnea

<20 Confused

Die → Ischemia

MCV → Normal

→ Low sideroblastic
Iron, chronic
Thalassemia

KAPLAN

MEDICAL

Anemia

Symptoms

Hypersegmented

→ High B12 / Folate
Liver, Alcohol

HCT

730-

25-30

20

fatigue

strep

MCV → Normal

Loss / Hemolysis

→ Low sideroblastic
Iron, chronic
Thalassemia

KAPLAN MEDICAL

Anemia

Causes

Hyper
Segmented

→ High
B12 / Folate
Liver, Alcohol

⊙
Tired + Tigue
Dyspnea
p d

MCV → Normal

Loss / Hemolysis

→ Low Sideroblastic
Iron, KAPLAN MEDICAL
Thalassemia

ANEMIA

Symptoms

Threat

→ High
B12 / Folate
Liver (Alcohol)

HCT

730-35

25-30 TIRE

20-25

<20

MCV → Normal

Loss / Hemolysis

cardiac
KAPLAN MEDICAL

ANEMIA

Symptoms

Hypersegmented

→ High
B12 / Folate
Liver, Alcohol

50
30 Tired + fatigued
25 Dyspnea
Confuse
Isch

MCV → Normal
Loss / Hemolysis

→ Low Sideroblastic
Iron, Chronic
Thalassemia

KAPLAN MEDICAL

Anemia

Symptoms

Hypersegmented

High B12/Folate
Liver (Alcohol)

T

10-35

5-30 Tired/Fatigue

25 Dyspnea

Confused

Ischemia

MCV Normal

Loss/Hemolysis

Low Sideroblastic
Iron, Chv, Thalassemia
KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-35

25-30 Tired

20-25 Dyspnea

<20

→ High
B12/Folate
Liver/Alcohol

MCV → Normal

Loss/Hemolysis



Introduction to Anemia

End

↓ MCV

ns $\frac{T}{S_2}$

Ø
Tired + fatigued
Dyspnea
Confusion
e → Is

ANEMIA

Symptoms $\left\{ \begin{array}{l} T \\ S_2 \end{array} \right.$

HCT

73

25-30

20-25

<20

fatigue

\downarrow MCV

↓ MCV



$\frac{T}{S_2}$

red + fatigued
dyspnea
confuse
Ischemia

ANEMIA

Symptoms

HCT

730-35

25-30

20-25

<20

↓ MCV

Iron

Anemic

S

fatigue
weak
use
chemo

↓ NOV

Jan

April

Summer

Iron

Chronic

↓ MCV

Sideroblastic

ANEMIA

Symptoms $\left\{ \begin{array}{l} + \\ S_2 \end{array} \right.$

HCT

730

25-30

20-25

15-20

Fatigue

ION

Chronic

\downarrow MC

ANEMIA

SYMPTOMS

HCT

30-35 %

25-30 Tired + fatigued

20-25 Dyspnea

CONFUSE

Die \rightarrow Ischemia

ANEMIA

SYMPTOMS $\left\{ \begin{array}{l} T \\ S \end{array} \right.$

Loss
Iron
1mg/Day

Tired + fatigued

Dyspnea

Diffuse

Ischemia

ANEMIA

Symptoms

T₁
S₂

↑ Loss
Iron
1 mg / Day

35 y
30 y Tired + fatigued
Dyspnea
Pale
Chronic

ANEMIA

Symptoms

↑
↓

25
25
Reduced Fatigue
Dyspnea
C

need

↑ Loss

Iron

1 mg / Day

Chronic

ANEMIA

SYMPTOMS

Hb

730

25-

20-

<

↑

fatigue

weak

↑ loss

Iron

1 mg / Day

need

Pregnancy

Chro

Anemia

Symptoms \uparrow
 \downarrow

Fatigue
Dyspnea
Pale

Diagnosis

Loss

Iron

Need

1 mg/day

Pregnant 5-6 mg/day
Absorb

ANEMIA

SYMPTOMS

HCT

730-3

25-30

20-

<2

fatigue

weak

Need

↑loss

Iron

1mg/day

Pregnant 5-6 mg/day
Absorb max 4mg

Chronic

↓mo

ANEMIA

Symptoms \uparrow

1. Pale

2. Tired + Fatigue

3. Dyspnea

\uparrow Loss

Iron

Need

1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

KAPLAN MEDICAL

ANEMIA

Symptoms

HCT

730-

25-30

Fatigue

Weakness

Headache

PMO

↑ Loss

Iron

Need

1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-35

25-30 Tired + Fatigue

Dyspnea

Diffuse

Ischemia

↑ Loss

Iron

Need

1 mg/day

Pregnant 5-6 mg/day

Absorb Max 4 mg/day

Excrete

Anemia

S

S

T
S₂

te

7

2

red fatigue

Dyspnea

fuse

-hemio

↑loss

Iron

need

1mg/Day

Pregnant 5-6 mg/day

Absorb max 4mg/Day

Excrete

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

TIGU

↑loss

Iron

Need

1mg/Day

PREGNANT 5-6mg/Day

Absorb max 4mg/Day

Excrete

ANEMIA

SYMPTOMS

TEST

10-35 μ

10-30 Tired/Fatigue

10-25 Dyspnea

10-20 Confuse

Die \rightarrow Ischemia

Loss

Iron

Need

1mg/Day

Present 5-6 mg/Day

Absorb Max 4mg/Day

Excrete

↓ MCV

Sideroblastic

Thalassemia

MCV

MCV

Sideroblastic

Thalassemia

Major

hemochromatosis

Liver

Heart

Pancreas

ANEMIA

Symptoms

HCT

730-35

25-30

20-25

<20

Tired

Dysp

Co

Need

Loss

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb max 4

Excrete

Chronic

KAPLAN MEDICAL

↓ PCR

Chaperone

Substrate

Therapeutic



KAPLAN MEDICAL

↓ MCV

Sideroblastic

Thalassemia

Major

hemochromatosis

• Liver

• Heart

• Pancreas

• Infertility

Transfused

2-4 units

MCV

Sideroblastic

Thalassemia

Major

hemochromatosis

• Liver

• Heart

• Pancreas

• Infertility

Transfused

2-4 units

Packed cells

4mg

ANEMIA

SYMPTOMS $\left\{ \begin{array}{l} \uparrow \\ \downarrow \end{array} \right.$

HCT

730-35 ϕ

25-30 Tired + Fatigue

20-25 Dyspnea

<20 Confuse

Die \Rightarrow Ischemia

\uparrow loss

Iron

1 mg/day

5-6 mg/day

max 4 mg/day

Chronic

\downarrow m

↓ MCV

Chronic

Sideroblastic

Thalassemia

MCOT

Thalassemia

Liver

Heart

Paroxysmal

NOCTURIA

Transfusion

Packed cells

100 ml

SSOme / unit

↓ MCV

Sideroblastic

Thalassemia

MCV

Microcytic

or

Heart

Pancreas

- Infertility

Transfusion

2- Packed cells

1 mg / ml

350 ml / unit



KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-3

25-30

20-25

<20

Fatigue

ppg

↑loss

Iron

1mg/Day

Need

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

Chronic

↓m

↓ PCV

Chronic

Sickle Cell

Thalassemia

Myeloma

Hemolysis

Liver

Heart

Renal

Transfusion

Washed RBCs

1mL

500mL

KAPLAN MEDICAL

ANEMIA

Symptoms

HCT

730-35

25-30 Tired?

20-25

<20

↑ Loss

Iron

Need

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

ANEMIA

Symptoms \uparrow \downarrow

HCT

70-35 ϕ

25-30 Tired + Fatigue

20-25 Dyspnea

<20 Confuse

Die \Rightarrow Ischemia

\uparrow Loss

Iron

Need

Pre

Absor

Exc

mg/day,
mg/day

Chronic ↓ MCV

Sideroblastic

Thalassemia

Major

hemochromatosis

Liver

Heart

Pancreas

Infertility

Transfusion

2-
Packed cells

1 mg / mL

350 mL / UNIT

Desferrioxamine

INOT

Ques

Substance

Thalassaemia

INOT

Thalassaemia

Thalassaemia

Thalassaemia

Thalassaemia

Thalassaemia

Thalassaemia

Thalassaemia

Thalassaemia

Thalassaemia

KAPLAN MEDICAL

ANEMIA

Symptoms

Tired + fatigued
Dyspnea
Pale

↑ Loss

Iron

Need

1 mg / Day

Pregnant 3-6 mg / Day

Absorb Max 4 mg / Day

Excrete

Chronic

ANEMIA

Symptoms

1. Tired/fatigue
2. Dyspnea
3. Confuse
4. Ischemia

→ ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb max 4 mg/Day

Excrete

Chronic

S ↑
S₂

tired + fatigued
Dyspnea
confuse
Ischemia

need
Pregnancy
Absorb
Excrete
Iron
↑ loss

Chronic
↓ MCV
Sideroblast

60% of Fe

→ ↑loss

Need

Iron

1mg/Day

Pregnant ~~5~~ 6mg/Day,

Absorb max 4mg/Day

Excrete

↓mcv

Chronic

Siderob

60 ♂ office
tired HCT 30
M 68

ANEMIA

Symptoms \uparrow

HCT

730-35 ϕ

25-30 Tired

20-25

<20

\rightarrow Loss

need

Iron

1mg/Day

Pregnant 5-6mg/Day
Dose max 4mg/Day
Excrete

\downarrow MC

Chronic

60 ϕ

Tired

Stool \ominus x

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-35

25-30 TIRE

20-25 D

<20

→ Loss

Iron

Need

1mg/Day

PREGNANT 5-6 mg/day

Absorb Max 4mg/day

Excrete

Chronic

60

TIRE

STOOL

KAPLAN MEDICAL

ANEMIA

Symptoms

HCT

730-35

25-30

20-25

<20

→ Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

Chronic

60

711

Stool

SCo

KAPLAN MEDICAL

EMIA

SYMPTOMS

T

0-35

-30

-25

20

→ Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb Max 4mg/Day

Excrete

↓ MCV

Chronic

60% OFFICE

Tired HCT 3

STOOL ⊖ X3

→ Colonoscopy

KAPLAN MEDICAL

→ ↑ Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb max 4 mg/day

Excrete

↓ MCV

Chronic

Sideroblasts

60 ♂ OFFICE

Tired HCT 30

QW 68

Stool ⊖ x3

→ Colonoscopy

KAPLAN MEDICAL

ANEMIA

Symptoms \uparrow

HCT

730-35 ϕ

25-30 Tired + fatigued

20-25 Dizziness

<20 - C

\rightarrow \uparrow Loss

Iron

1mg/day

6mg/day

max 4mg/day

excrete

\downarrow MC

Chronic

60 ϕ

Tired

Stool \ominus x

Colonos

KAPLAN MEDICAL

Anemia

Symptoms

↑↑
↓

- 1. Tired + Fatigue
- 2. Dyspnea
- 3. Confuse
- Die → Ischemia

→ Loss

Iron

Need

1 mg/Day

~~Pregnant 5-6 mg/Day~~

Absorb max 4 mg/Day

Excrete

ANEMIA

SYMPTOMS

HCT

730-3

25-30

20-

Fatigue

leg

GI ↑loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

Chronic

↓m

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

15-20

ATIGU

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4mg/Day

Excrete

Chro

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

<20

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

Chronic

↓mo

Micro

SYMPTOMS

CT

30-35

5-30 Tired + a

0-25 Dysp

20 - Con

De

(GI) ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Postpartum max 4 mg/Day

Excrete

↓ MCV

Chronic

Anemia

EMIA

SYMPTOMS

CT

30-35

5-30 Tired + fati

0-25 Dyspnea

20 - Cough

Die

GI Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day,
absorb max 4mg/Day,
Excrete

↓ MCV

Chronic
Any RA
Causes
→ ESRD



ANEMIA

Symptoms

HCT

730-35

25-30

20-25

<20

Tissue

(GI) ↑loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day,
Absorb Max 4mg/Day,
Excrete

ANEMIA

Symptoms

↑
↓

35%

30% Tired + Fatigue

chemo

(GI) ↑ Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb Max 4 mg/day

Excrete

Any
→

ANEMIA

Symptoms

1. Fatigue
2. Dyspnea
3. Headache
4. Dizziness
5. Pale skin
6. Tachycardia
7. Irritability
8. Depression
9. Anorexia
10. Weight loss
11. Menstrual changes
12. Pica
13. Brittle nails
14. Spoon nails
15. Koilonychia
16. Plummer-Richmond lines
17. Bitot's spots
18. Cheilosis
19. Glossitis
20. Angular stomatitis
21. Stomatitis
22. Stomatitis
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98. Stomatitis
99. Stomatitis
100. Stomatitis

GI → Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb 1 mg/day

Excrete

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

<20

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

<20

GI

Loss

Need

Iron

1mg/Day

Absorb ~~Pregnant 5-6mg/Day~~
Excrete max 4mg/Day

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

<20

GI Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day,
Absorb max 4mg/Day,
Excrete

↓ MCV

Chronic
Any RA
Cancer
ESRD



(GT) (Loss)

Need

Iron

1mg/Day

Pregnant 5-6mg/Day,
Absorb Max 4mg/Day,
Excrete

Chronic
Any RA
Causes
RD

KAPLAN MEDICAL

GT ↑loss

Iron

1mg/Day

5-6mg/Day

max 4mg/Day

reTe

↓MCV

Chronic

Any RA

Cancer

ESRD

Siderob

Lead

(GI) → ↑loss

↓ MCV

Need

Iron

↓

Present

Absorb Max

Excrete

Chronic
Any RA
Cancer
ESRD

Sideroblastic

Alcohol

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

<20

GI

Loss

Need

Iron

1mg/day

Pregnant ~~5-6 mg/day~~
Absorb max 4mg/day
Excrete

Chronic

Any pt

Cancer

PSND

KAPLAN MEDICAL

ANEMIA

Symptoms

HCT

730-35

25-30 Tired + fatig

20-25 Dyspnea

<20 -

(GI) ↑ Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb max 4 mg/day

Excrete

Chronic

Any RA

Cancer

ESRD

ANEMIA

Symptoms \uparrow \downarrow

HCT

730-35 ϕ

25-30 Tired + fatig

20-25 Dyspnea

<20 - Co

Die

(GI) \rightarrow (Loss)

need

Iron

1mg/day

Present 5-6 mg/day
max 4mg/day

crete

\downarrow MC

Chronic

Any RA

\rightarrow Cancer
ESRD

ANEMIA

Symptoms

HCT

730-35

25-30 Tired

20-25 Dyspnea

<20 - Conf

Dre

(GI) ↑ Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day,
Absorb Max 4mg/Day,
Excrete

↓ MC

Chronic
Any RA
Cancer
ESRD

GT → ↑loss

↓MCR

need Iron
↓
Day

6 mg/day
Absorption
Excretion
4 mg/day

Chronic
Any RA
Causes
→ ESRD

Sideroblastic

Alcohol /
Lead / INH

↓ MCV

Chronic

Any RA
Causes
ESRD

Sideroblastic

Alcohol /
Lead / INH

hemolysis

Major

hemochromatosis

Liver

Heart

Pancreas

Infertility

Transfusion

2-

Packed cells

1 mg / mL

350 mL / UNIT

Dextroferoxamine

KAPLAN MEDICAL

↓ MCV

Chronic

Any

Sideroblastic

Alcohol
Lead
INH

Thalassemia
Trait

Med

Therapy

Liver

Heart

Pancreas

Intest

Transfusion

2- Packed

1 mg / ml

350 ml /

Dysferrox

Loss

Iron

mg/Day

5-6 mg/Day,
max 4mg/Day

↓ MCV

Chronic

Any RA
Cause
→ ESRD

Sideroblastic

Alcohol
Lead, INH

Thalassemia

Trait

↓↓↓ MCV

m
the
Liv
the
- Pa
- A
Tra
2-
Dack
1 mg/
350
Disf

ANEMIA

SYMPTOMS

HCT

730

25-30

20-25

<20

↑
S₂

Fatigue

Weakness

Headache

PH₁₀

(GI) ↑ Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb Max 4 mg/day

Excrete

↓ m

Chronic

Any RA

Causes

ESRD

ANEMIA

Symptoms \uparrow

HCT

730-35 ϕ

25-30 Tired +

20-25 D

<20

(GI) \uparrow loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

DSORH Max 4mg/Day

Excrete

Chronic
Any RA
Cause
ESRD

KAPLAN MEDICAL

ANEMIA

Symptoms

Tired + fatigued

(GI) (Loss)

Need

Iron

1mg/day

Pregnant 5-6mg/day
Absorb Max 4mg/day
Excrete

Chronic
Any
Cause
ESR

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

<20

TIGU

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6 mg/Day

Absorb max 4mg/Day

Excrete

Chronic

Any RA

Cancer

ESRD

(GT) ↑ Loss

Need

Iron

1 mg/Day

Present 5-6 mg/Day
Absorb max 4 mg/Day
Excrete

↓ MCV

Chronic
Any of
Causes
→ ES RD

Sideroblastic

Alcohol
Lead, INH

Th
TS
↓
↑

ANEMIA

Symptoms

HCT

730-35 ρ

25-30 Tired

20-25 Dyspnea

<20 - severe

GI

Loss

Need

Iron

1mg/day

Pregnant 5-6 mg/day
Absorb max 4mg/day
Secrete

Chronic

Any RA

Causes
SSND

KAPLAN MEDICAL

Anemia

Symptoms \uparrow \downarrow

Hb

730

25-30 \uparrow fatigue

20

<20

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

Chronic

Any RA

ESRD

ANEMIA

SYMPTOMS

HCT

730-3

25-30

20-25

<

Tigup

req

(GI)

(Loss)

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb Max 4mg/Day

Excrete

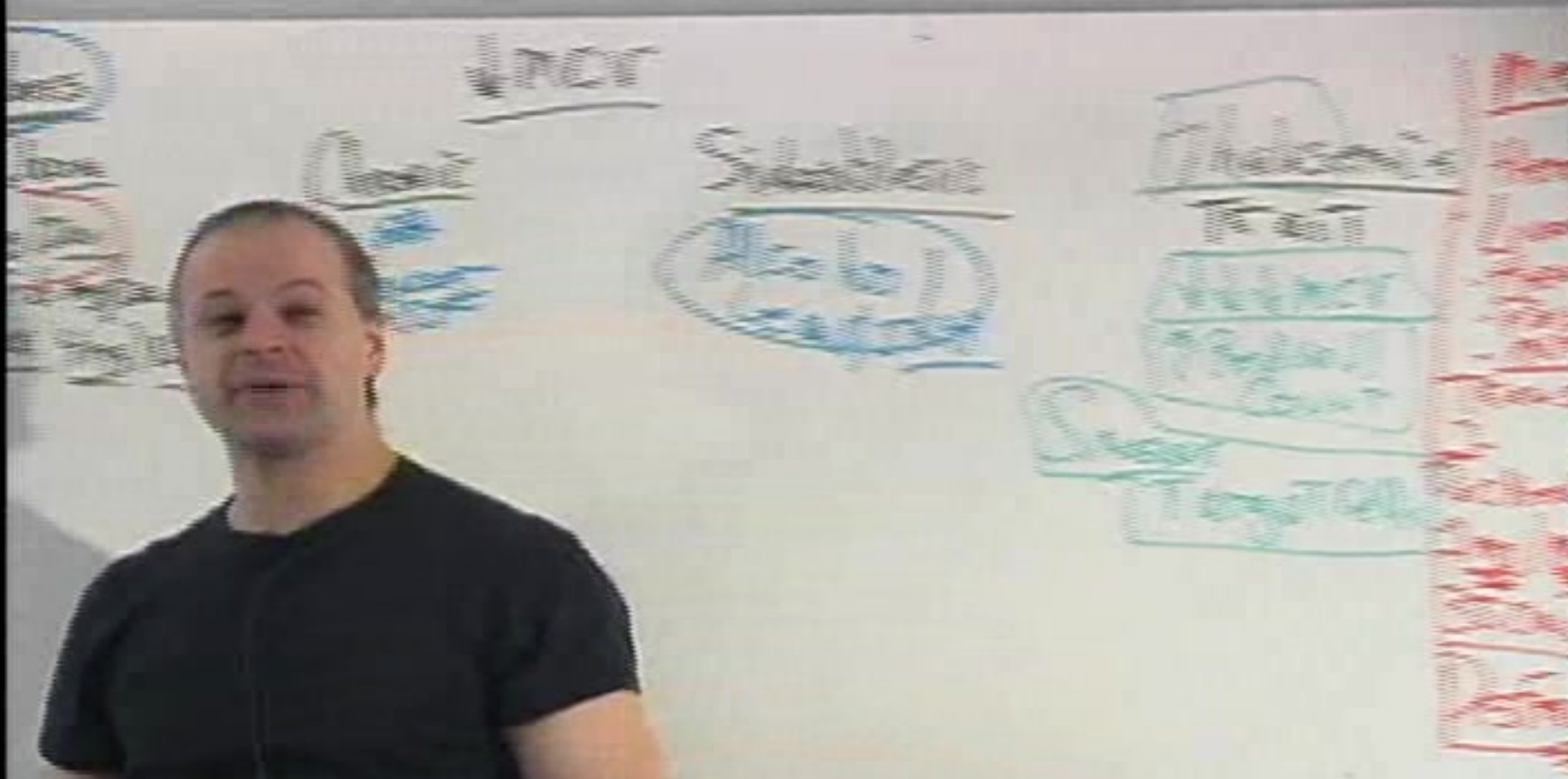
Chronic

Any RA

Causes

→ ESRD

↓ m



Loss

Iron

mg/Day

5-6 mg/Day,

max 4mg/Day

↓ MCV

Chronic

Sideroblastic

Alcohol
Lead, INH

Thalassemia

Trait

↓↓↓ MCV

↑ Red Cell
Count

Smear

Target Cells

M

the

live

the

- Pa

- M

Trans

2-

Packed

1 mg/

350m

Disfe

KAPLAN MEDICAL

ANEMIA

Symptoms

HCT

730-35

25-

20-

<20

Tiguo

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb Max 4mg/Day

Excrete

Chronic

Any RA

→ Cancer
ESRD

KAPLAN MEDICAL

ANEMIA

Symptoms

HCT

730-35

25-30 Tired

20-25 Dyspnea

<20 Dyspnea

GI Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

Chronic

Any RA

Cancer
ESRD

KAPLAN MEDICAL

Loss

Iron

mg/day

5-6 mg/day

max 4 mg/day

↓ MCV

Chronic
Any RA
Cancer
→ ESRD

Sideroblastic

Alcohol
Lead, INH

Thalassemia

Trait

↓↓↓ MCV

↑ Red cell
Count

Smear

Target Cells

M

then

Live

the

- N

Trans

2-

Packed

1 mg /

3500

Def

EMIA

SYMPTOMS

T

0-35

-30

-25

20

(GT) ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

Excrete

↑

↓ MCV

Chronic
Any RA
Cancer
→ ESRD

S
(A)

ANEMIA

Symptoms

HCT

730-

25-3

20-

<

Fatigue

Weakness

Headache

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

↑RDW

≡

↓MCV

Chronic

Any RA

→ ES RD

ANEMIA

SYMPTOMS

HCT

730-35

25-30

20-25

<20

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

↑RDW

000

Chronic

Any RA

→ Cancer
→ ESRD

ANEMIA

Symptoms \uparrow
 \downarrow Hb

35 \downarrow

30 \downarrow Tired + fatigued

25 \downarrow Dyspnea

20 \downarrow Confuse

hemio

GI \uparrow Loss

Need

Iron

1 mg / Day

Pregnant ~~5~~ 6 mg / Day,
Absorb max 4 mg / Day,

Excrete

\uparrow RDW

OOOOOOOO

Chronic
Any ~~RA~~
Cancer
 \rightarrow ~~ES~~ RDW

ANEMIA

Symptoms

HCT

730-35

25-30

20

15

(GT) ↑loss

Need

Iron

1mg/day

Pregnant 5-6mg/day,
Absorb max 4mg/day,
Excrete

↑RDW

○○○○○○○○○○
○○

Chronic
Any RA
→ ES RD

ANEMIA

Symptoms

HCT

73

25

fatigue

dyspnea

confuse

anemia

GI

Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

↑RDW

○○○○○○○○○○

○○

○○

Chro
Any R
Can
ESR

ANEMIA

Symptoms

↑↑
↓↓

↑ red fatigue

↑ Dyspnea

↑ Confuse

↑ Die → Ischemia

GI

↑ Loss

Need

Iron

1 mg/day

Present 5-6 mg/day

Absorb max 4 mg/day

Excrete

↑ RDW

○○○○○○○○○○

Chronic

Any RA

→ ESRD

ANEMIA

Symptoms

HCT

730-35

25-30 Tired

20-25 Dyspnea

<20

GI Loss

Need Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

↓m

Chronic

Any RA

Cancer

ESRD

ANEMIA

Symptoms

HCT

730-35

25-30

20-25

<20

(GI) ↑loss

need

Iron

1mg/day

Pregnant 5-6mg/day,
Absorb max 4mg/day,
Excrete

↑RDW

○○○○○○○○○○

↑

Chronic
Any RBC
Causes
→ RDW

KAPLAN MEDICAL

Anemia

Symptoms

HCT

730-

25-30

20-25

Fatigue
Weak

GI Loss

Need

Iron

1mg/day

Pregnant 5-6mg/day
Absorb max 4mg/day

Excrete

↑RDW

○○○○○○○○○○

↑

New

Chronic
Any poor
cause
→ SS RDW

Symptoms

1. Class

need

100%

45

Пробит 36 м/дн.

Absorb Max 4m/da

Exercise

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-

25-30

20

Fatigue

Weakness

Headache

GI Loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

Excrete

↑ RDW

Hg ↓ Hg Hg 20000

↑

New

KAPLAN MEDICAL

ANEMIA

IRON S \uparrow

Tired + fatigued
Dyspnea

GI \rightarrow Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb max 4 mg/day

Excrete

\uparrow RDW

$>$ Hg \downarrow Hs Hs Hs Hs Hs Hs Hs Hs

\uparrow

\uparrow New

KAPLAN MEDICAL

AN ENIGMA

Symptoms

CT

0-35 Ø

- 3Q Tired + fatigued

At 25% Dyspnea

CONFUSE

311

Schemio

GT \uparrow loss

Need

Iron

1 mg / Day

Результат 56 мг/дл,

Absorb max 4mg/day

Excrete

↑ RDW

Handwritten notes showing a sequence of numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100.

↑
New

ANEMIA

SYMPTOMS

HCT

730-35 ♂

25-30 Tired

20-25 D

<20

GI Loss

Need

IRON

1mg/Day

PREGNANT 5-6 mg/Day

POST MAX 4mg/Day

EXCRETE

↑RDW

Hg Hs Hs Hs Hs Hs Hs Hs

KAPLAN MEDICAL

s
T

Tired/Fatigue
Dyspnea
Confuse
Icteria

GT, 1/less

↓ MCV

need

Iron

1mg/day

Prescribe 5-6 mg/day
Monitor max 4mg/day

Excrete

↑ RDW



Anemia

Sider

Alco
Lea

ANEMIA

Symptoms

Tired + fatigued
Dyspnea
Pallor

GI → ↑ Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day
Absorb max 4 mg/day
Excrete

↑ RDW

> H₂O → New

Chronic
Any R
Ca
ESR
○○○○

↓ MCV

Sideroblastic

Alcohol /
Lead / INH

Thalassemia
Trait

oo

↓↓↓ MCV

↑ Red cell
Count

Smear

Target Cells

Major

hemochromatosis

Liver

Heart

Pancreas

Infertility

Transfused

2-

Packed cells

1 mg / mL

350 mL / UNIT

Desferrioxamine

ANEMIA

Symptoms ↑

HCT

730-35

25-30

20-25

<20

GI

↑loss

need

Iron

1mg/day

Pregnant 5-6mg/day

Absorb max 4mg/day

KAPLAN MEDICAL

ANEMIA

SYMPTOMS

HCT

730-1

25-30

20

Fatigue

Headache

GI → Loss

Need

Iron

1mg/Day

Prescription 5-6mg/Day
Absorb max 4mg/Day

IRON

Chronic
Any RA
Cancer
→ ESRD
0000

GI \rightarrow \uparrow Loss

Need

Iron

1mg/Day

PREGNANT 5-6mg/Day

Absorb Max 4mg/Day

\downarrow FERRITIN

(GI) → (↑loss)

↓ MCV

Need

Iron

(1 mg/Day)

Pregnant 5-6 mg/Day,
Absorb Max 4 mg/Day

(↓FERRITIN)

↓Fe

Chronic
Any RA
Cancer
→ ESRD
0000

↓Fe

GI → Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day
Absorb Max 4 mg/Day

↓ FERTILITY

↓ Fe

Chro
Any R
C
→ ESR
0000

↓ Fe

GT → Loss

Need

Iron

1 mg/Day

PREGNANT ~~5-6 mg/day~~
Absorb Max 4 mg/Day

↓ FERRITIN

↓ Fe

Chro
ANY R
Cox
→ SSR
○○○○

↓ Fe

GT → ↑Loss

Need

Pregnant 1mg/day,
Absorb 4mg/day

↓Fe

Chro
Any R
Can
→ SS R
oooo

↓Fe

KAPLAN MEDICAL

GI \rightarrow Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day,
Absorb Max 4 mg/Day

\downarrow FERRITIN

\downarrow Fe

KAPLAN MEDICAL

GI → ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

↓ FerriTIN

↓ Fe

Chronic

Any RA

Cancer

→ ESR ↑

0000

↓ Fe

(GT) ↑loss

need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb Max 4mg/Day

↓FERRITIN

↓ Normal

↓Fe

↑TIBC

Chronic
Any RA
Cause
→ ESR ↑
○○○○

↓Fe

(GT) → ↑loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb Max 4mg/Day

✓ ↓FERRITIN

✓ 3 Normal

↓Fe

↑TIBC

KARLAN MEDICAL

(BT) → ↑loss

need

Iron

1mg/Day

Pregnant 5-6mg/Day
Absorb Max 4mg/Day

↓FERRITIN

Normal

↓Fe

↑TIBC

Chro
Any R
Can
→ ESR
0000

↓Fe

(GT) ↑loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day
Absorb Max 4mg/Day

↓ FerriTIN

3 Normal

↓ Fe

↑ TIBC

Chronic
Any RA
Cause
→ ESRD
0000

↓ Fe



GI → ↑loss

need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

↓ FerriTIN

Normal

↓ Fe

↑ TIBC

(GT) → ↑loss

↓ MCV

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day,
Absorb Max 4 mg/Day

Chronic
Any RA
Cancer
→ ESRD

↓ FerriTIN

3 Normal

↓ Fe

↓ TIBC

↓ Fe

↓ TIBC

(GT) → ↑loss

↓ MCV

Need

Iron

1mg/Day

Pregnant 5-6mg/Day
Absorbs max 4mg/Day

Chronic

Any RA

Cancer

→ ESRD

0000

↓ FERRITIN

↑ FERRITIN

1/3 Normal

↓ Fe

↓ Fe

↑ TIBC

↓ TIBC

GT → ↑loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb Max 4mg/Day

↓ FerriTIN

3 Normal

↓ Fe

↑ TIBC

KAPLAN MEDICAL

(GI) → ↑loss

need

Iron

1mg/Day

Pregnant 5-6mg/Day
Absorb Max 4mg/Day

↓ FerriTIN

④ Normal

↓ Fe

→ ↑ TIBC^x

Chro
Any R
Can
→ ESR
0000

↑ FerriTIN

↓ Fe

↓ TIBC



(GI) → (↑loss)

need

Iron

(1mg/day)

PREGNANT 5-6mg/day

Absorb max 4mg

(↓) (V Ferritin)

(V) (3 Normal)

↓ Fe

→ ↑ TIBC

KAPLAN MEDICAL



GL → TM
Need Im
Pregnant 3
Absorb Ma
✓ fertility
④ 3 normal
↓
→ ↑ TIR



(GL) (M)

Need

(1M)

Pregnant 3

Absorb Ma

(1/3) Normal

(1/3) Normal

↓

→ ↑ TIR

KAPLAN MEDICAL



Need

1m

Pregnant 3

Absorb ma

↓ Fertilization

④ 3 Normal

↓
→ ↑ TIR

KAPLAN MEDICAL



GI → Loss
Need Iron
1 mg/day
PREGNANT 5-6 mg/day
Absorb Max 4 mg
FerriCIN
3 Normal ↓ Fe
→ ↑ TIBC

GT → ↑loss

Need

Iron

1mg/Day

Pregnant 5-6mg/day,
Absorb Max 4mg/day

↓ FerriTIN

1/3 Normal

↓ Fe

→ ↑ TIBC

Chronic
Any RA

→ ~~ESRD~~
○○○○

↑ FerriTIN

↓ Fe

↓ TIBC

(GI) → (↑Loss)

Need

Iron

(1mg/Day)

Pregnant 5-6mg/Day

Absorb Max 4mg/Day

(↓FERRITIN)

(1/3 Normal)

↓Fe

→ ↑TIBC

(Marrow)



GI → Loss

Need

Iron

1 mg/Day

~~PREGNANT 5-6 mg/Day~~

Absorb Max 4 mg/Day

↓ FERRITIN

1/3 Normal

↓ Fe

→ ↑ TIBC

Marrow

Ch
ANY
→
↑ Ferr
↓ Fe
↓ TIBC



(GT) → (loss)

Need Iron
1mg/Day

PREGNANT 5-6mg/Day
Absorb max 4mg/Day

(Normal) → (FERTILIZATION)

↓ Fe
→ ↑ TIBC
(Marrow)



(GT) → ↑ Loss

Need

Iron

1 mg / Day

PREGNANT 5-6 mg / Day

Absorb Max 4 mg / Day

↓ FerriTIN

↓ 3 Normal

↓ Fe

→ ↑ TIBC

↑ Marrow



(GT) → ↑ Loss

Need

Iron

(1mg/Day)

PREGNANT 5-6mg/Day

Absorb Max 4mg/Day

(↓) (3 Normal) (↓ FERTILITY)

↓ Fe

→ ↑ TIBC

(Marrow)

KAPLAN MEDICAL

(GT) → ↑ Loss

Need Iron
1 mg/Day

Present 5-6 mg/Day
Absorb Max 4 mg/Day

↓ FerriTIN
(3 Normal)

↓ Fe
→ ↑ TIBC

Marrow

KAPLAN MEDICAL

(GT) → ↑ Loss

Need

Iron

1 mg/Day

Pregnant ~~5~~ 6 mg/Day,
Absorb Max 4 mg/Day

(1/3 Normal)

↓ FerriTIN

↓ Fe

→ ↑ TIBC

↑ Marrow

(GT) ↑ Loss

Need

Iron

(1 mg/Day)

Pregnant ~~5~~ 6 mg/Day

Absorb Max 4 mg/Day

(↓ FerriTIN)

(1/3 Normal)

↓ Fe

→ ↑ TIBC

(Marrow)

GT → ↑ Loss
Need Iron
1 mg/Day
Pregnant 5-6 mg/Day
Absorb Max 4 mg/Day

↓ FerriTIN
3 Normal
↓ Fe
→ ↑ TIBC
Marrow

Ch
Any
Ca
→
○○○○
↑ Ferri
↓ Fe
↓ TIBC

Loss

Iron

1 mg/day

5-6 mg/day

max 4 mg/day

ICN

↓ Fe

↓ B C

↓ W

↓ MCV

Chronic

Any AA

Causes

→ ESRD

oooo

↑ Ferritin

↓ Fe

↓ TIBC

Sideroblastic

Alcohol

Lead, INH

Thalassemia

Trait

oo

↓↓↓ MCV

↑ Red cell count

Smear

Target cells

KAPLAN MEDICAL

(GT) → (↑loss)

need

Iron

(1mg/day)

Pregnant 5-6mg/day

Absorb Max 4mg/day

(↓ferriTiN)

(↓normal)

↓Fe

→ ↑TIBC

(Marrow)

(GT) ↑loss

↓MCR

Need

Iron

1m

Pregnant

Absorb 5m

Chronic

Any RA

Cancer

ESRD

Sideroblastic

Alcohol / Lead, INH

↓transferrin

↑Ferritin

↓Fe

Fe

3 Normal



(GT) → ↑ Loss

Need

IRON

(1 mg/day)

PREGNANT 5-6 mg/day

Absorb max 4 mg/day

(↓ FerriTIN)

(↓ Normal)

↓ Fe

→ ↑ TIBC

(Marrow)

(GT) ↑loss

Need

Iron

1mg/Day

Pregnant 5-6mg/Day,
Absorb max 4mg/Day

↓FERRITIN

✓
3 Normal

↓Fe

→ ↑TIBC

Marrow

Chronic
Any RA

→ ~~ESRD~~

0000

↑FERRITIN

↓Fe

↓TIBC

↓MO

(GT) → ↑ Loss

Need

Iron

1 mg / Day

Pregnant 5-6 mg / Day

Absorb Max 4 mg

↓ FERRITIN

1/3 Normal

↓ Fe

→ ↑ TIBC

Marrow



(GT) → ↑ Loss

Need

IRON

1 mg / Day

PREGNANT 5-6 mg / Day

Absorb Max 4 mg

(↓) (Normal) ↓ FERRITIN

↓ Fe

→ ↑ TIBC

Marrow!

GT → ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

↓ FerriTIN

3 Normal

↓ Fe

→ ↑ TIBC

Marrow

Repl

KAPLAN MEDICAL

(GT) ↑loss

↓MCV

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb 5-6 mg/day

Chronic

Any RA

Causes

→ ESR ↑

0000

↑ Ferritin

↓ Fe

↓ TIBC

√ Ferritin

↑ TIBC

Marrow

Replace

GI → Loss

Need

Iron

1 mg/Day

Pregnant ~~5~~ 6 mg/Day

Absorb Max 4 mg/Day

↓ FERTILIZATION

↓ Fe

↓ RBC

Replace

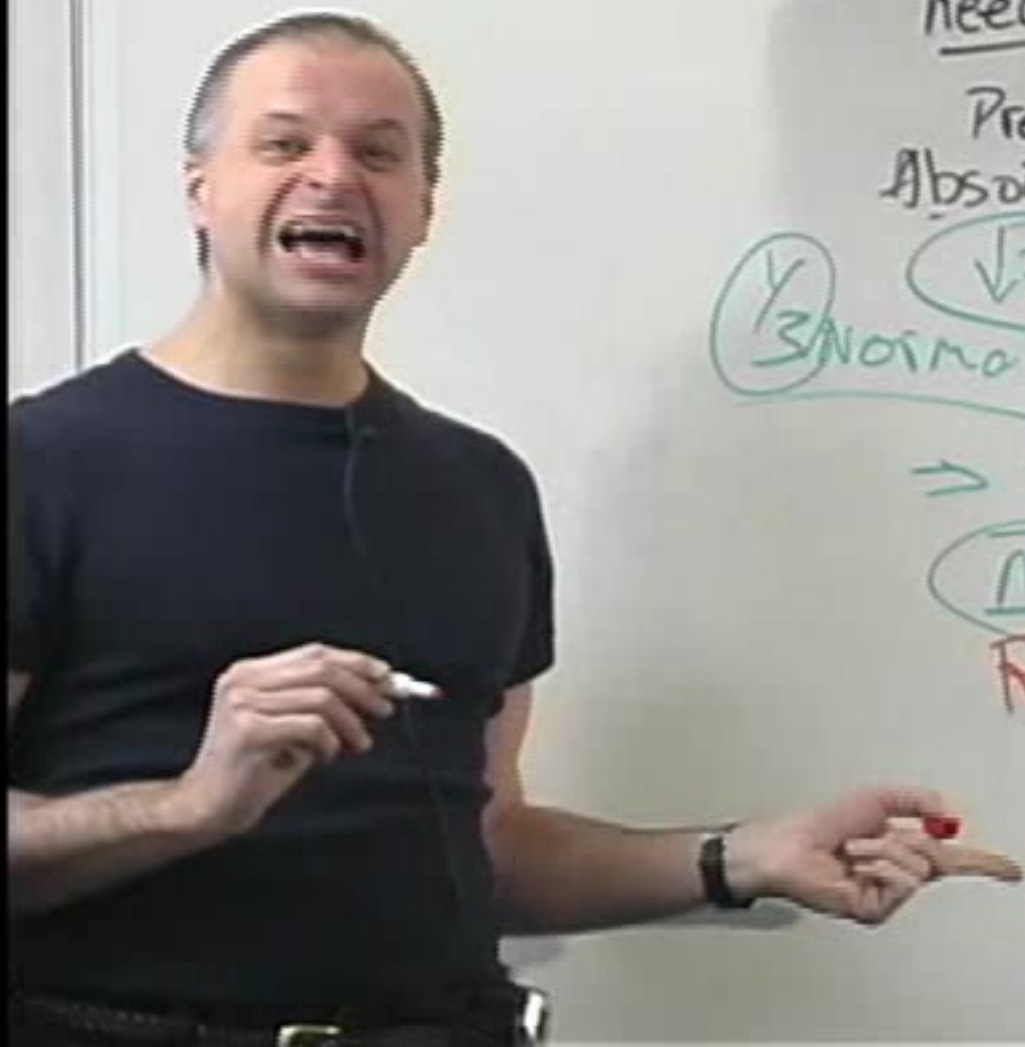
Ch
Any

→

↓ T

↓ T

KAPLAN MEDICAL



(GI) ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day
Absorb Max 4 mg/Day

(1/3 Normal) ↓ FERRITIN

↓ Fe
→ ↑ TIBC

Marrow
Replace

Chronic
Any RA
Cancer
→ ESR ↑

↑ FERRITIN
↓ Fe
↓ TIBC

↓ m



(GT) ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

↓ FerriTIN

1/3 Normal

↓ Fe

→ ↑ TIBC

Marrow

Replace

KAPLAN MEDICAL



(GI) → (Loss)

Need Iron

(1mg/Day)

Pregnant 5-6mg/Day,
Absorb Max 4mg/Day

(VITAMIN)

(Normal)

↓ Fe

→ ↑ TIBC

(Marrow)
Replace

KAPLAN MEDICAL



(GI) → (Loss)

Need

Iron

(1 mg/Day)

PREGNANT 5-6 mg/Day

Absorb Max 4 mg/Day

(1/3 Normal)

(↓ FerriTIN)

↓ Fe

→ ↑ TIBC

(Marrow)

Replace

KAPLAN MEDICAL

(GT) ↑ Loss

Need

Iron

1 mg/Day

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

(↓) Normal

↓ Ferriitin

↓ Fe

→ ↑ TIBC

Marrow
Replace

KAPLAN MEDICAL

(GT) → (Loss)

Need

Iron

(1 mg/Day)

Pregnant 5-6 mg/Day

Absorb Max 4 mg/Day

(1/3 Normal)

(↓ FerriTIN)

↓ Fe

→ ↑ TIBC

(Marrow)

Replace



(GT) → (↑loss)

Need Iron
(1mg/day)

Pregnant 5-6 mg/day
Absorb max 4mg/day

(↓ferritin)
(3normal)

↓Fe
IM Iron → ↑TIBC
(Marrow)
Replace



(GT) ↑ Loss

Need Iron
1 mg/Day

Pregnant 5-6 mg/Day
Absorb Max 4 mg/Day

↓ Fertilization
(Normal)

↓ Fe
↑ TIBC
Marrow Replace



(GT) ↑loss

need Iron

1mg/day

Pregnant 5-6mg/day

Absorb max 4mg/day

↓ FerriTIN

↓ 3 Normal

↓ Fe

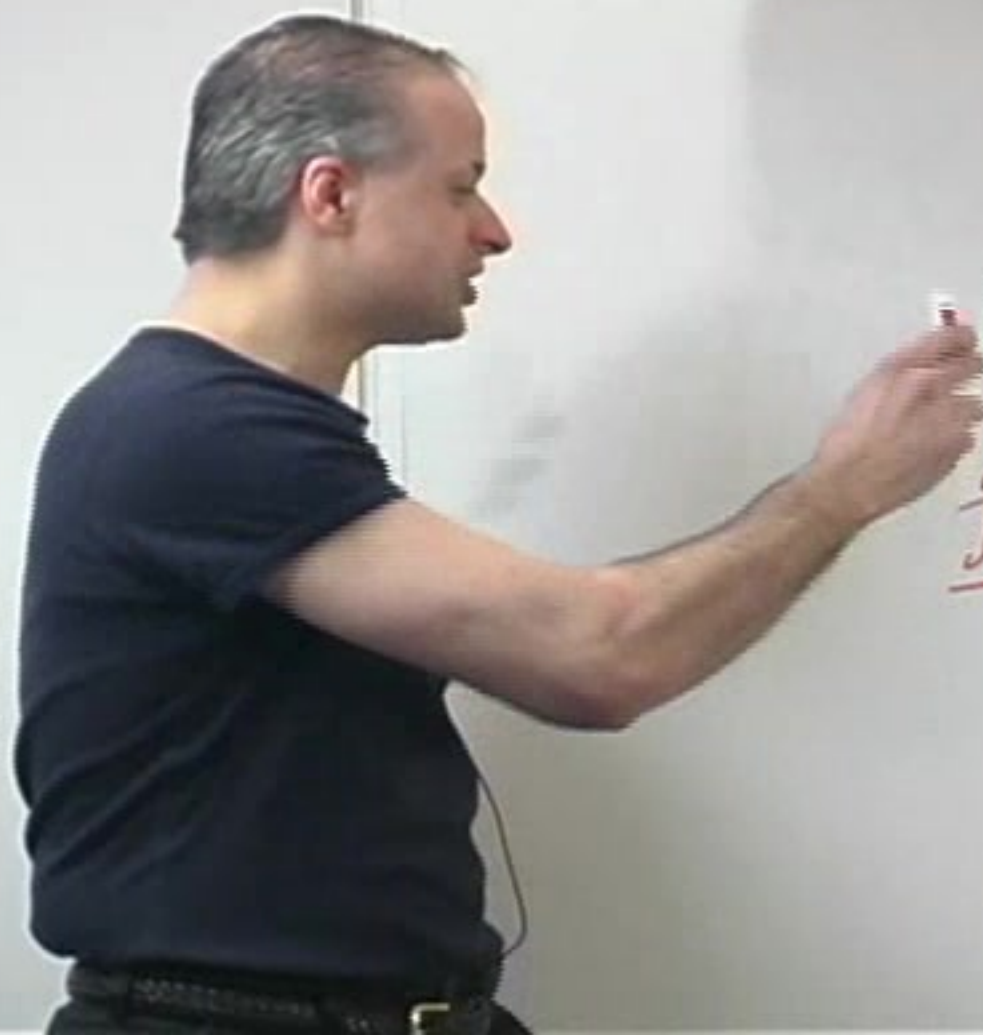
↓ IM
IRON

→ ↑ TIBC

Marrow

Replace

KAPLAN MEDICAL



(GI) → (Loss)

Need

Iron

(1mg/day)

Pregnant 5-6mg

Absorb max 4mg

(Fertilization)

(Normal)

↓ Fe

→ ↑ TIBC

IM Iron

(Marrow)

Replace

(GT) ↑loss

need Iron
1mg/day

Pregnant 5-6 mg/day
Absorb max 4mg

✓ 3 normal
↓Fe

↓TIBC
Marrow

Replace

GI \rightarrow \uparrow loss

\downarrow MCV

Need

Iron

1 mg/Day

6 mg/Day

x 4 mg/Day

Chronic

Any RA

Cancer

\rightarrow ESRD

oooo

\uparrow Ferritin

\downarrow Fe

\downarrow TIBC

Sideroblastic

Alcohol
Lead, INH

*
 \uparrow Fe

Smo

(GI) → (↑ loss)

↓ MCV

need Iron
Day

Chronic

Any RA

→ ~~ESRD~~

oooo

↑ Ferritin

↓ Fe

↓ TIBC <

Sideroblastic

(Alcohol)
(Lead, INH)

*
(↑ Fe)

(Smoking)

(GT) → (↑ Loss)

Need Iron
Day

Abs
M/
Yrs

↓ MCV

Chronic
Any RA
Cancer
→ ES RD

0000

↑ Ferritin

↓ Fe

TIBC <

Sideroblastic

(Alcohol)
Lead, INH

*
↑ Fe

GI → ↑loss

↓MCR

Iron

1mg/Day

5-6mg/Day

max 4mg/Day

Chronic
Any RA
Cancer
→ ESRD

Sideroblastic

Alcohol
Lead, INH

↑ Ferritin

↓ Fe

↓ TIBC

* ↑ Fe

Smear
Ta

GI → ↑loss

↓ MCV

Need

Iron

1 mg/day

Pregnant 5-6 mg/day

Absorb Max 4 mg/day

↓ FERRITIN

↓ Fe

Chronic

Any RA

Cancer

→ ESRD

0000

↑ FERRITIN

↓ Fe

↓ TIBC

(GT) ↑loss

Need

Iron

Pres
Absorb

↓Fer

Normal

↓MCR

Chronic
Any RA
Cancer
→ ESRD

oooo

↑Ferritin

↓Fe

↓TIBC

Sideroblastic

(Alcohol)
Lead, INH

*
↑Fe

Prussian Blue

Smear
T

(GI) ↑ Loss

Need

Iron

Preserve
Absorb

↓ Fer

Normal

↓ MCV

Chronic
Any RA
Cancer
→ ESRD

oooo

↑ Ferritin

↓ Fe

↓ TIBC

Sideroblastic

~~Also to~~
~~Lead, INH~~

oo

* ↑ Fe

* Prussian Blue

Smear

(GT) ↑loss

Need

Iron

1mg/Day

Presumpt 5-6mg/Day

Absorb Max 4mg/Day

↓FERRITIN

↓Fe

BC

Chronic

Any RA

→ ESRD

0000

↑FERRITIN

↓Fe

↓TIB

KAPLAN MEDICAL

(GI) → ↑Loss

Need

Iron

1mg/Day

PREGNANT 5-6mg/Day

Absorbs Max 4mg/Day

↓ FerriTIN

↓ Fe

↓ B.C

Chronic

Any RA

→ ES RD

0000

↑ FerriTIN

↓ Fe

↓ TIB

KAPLAN MEDICAL

GI → ↑loss

need

Iron

1mg/Day

Pregnant 5-6mg/Day

Absorb max 4mg/Day

↓ Ferritin

↓ Fe

↓ TIBC

↓ WBC

↓ RBC

Chronic

Any RA

→ ES RD

0000

↑ Ferritin

↓ Fe

↓ TIBC

KAPLAN MEDICAL

GI Loss

↓ MCV

Need

Iron

1mg/day

Pregnant 5-6mg/day

OSDs Max 4mg/day

↓ Ferritin

↓ Fe

↑ TIBC

↑ Transferrin

↓ Hct

Chronic

Any Rx

Causes

SSRD

↑ Ferritin

↓ Fe

↓ TIBC

KAPLAN MEDICAL

(GT) → (↑loss)

Need

Iron

(1mg/Day)

PREGNANT 5-6mg/day

Absorbs max 4mg/Day

(↓FERRITIN)

(1/3 Normal)

↓Fe

→ ↑TIBC

Marrow

Replace

Ch
Any
→

↑Fes

↓F

↓T

(GI) ↑loss

Need

Iron

1mg/day

Pregnant 5-6mg/day
Absorb max 4mg/day

↓ Feritin

Normal

↓ Fe

→ ↑ TIBC

Marrow

Replace

Chronic
Any RA

→ ES RD

0000

↑ Feritin

↓ Fe

↓ TIBC

GT → ↑loss

↓MCR

Need

Iron

4mg/Day

6mg/Day

4mg/Day

Chronic

Any RA

→ Cancer
→ ESRD

0000

↑ Ferritin

↓ Fe

↓ TIBC

Sideroblastic

~~Alcohol~~
~~Lead~~

* ↑ Fe

* Prussian Blue

Pyridoxine
ALA

KAPLAN MEDICAL

↓ MCV

Chronic

Any RA

→ Cancer
→ RD

oooo

↑ Ferritin

Sideroblastic

~~Alcohol~~
~~causing~~

Thalassemia

Trait

↓↓↓ MCV

↑ RBC

↑ Hb

↑ T cells

MCV

Thrombocytopenia

Liver

Heart

Pancreas

Intest

Transfusion

2- Packed cell

1 mg/ml

350 mL

Dysferoxin

↓ MCV

Chronic

Any RA
Cancer
ESRD

Ferritin

↓ Fe

↓ TIBC

Sideroblastic

~~Alcohol~~
~~Lead~~

Thalassemia ^{ti}
Trait

↓ MCV

Chronic

Any RA

→ Cancer
→ ESRD

oooo

↑ Ferritin

Sideroblastic

~~Alcohol~~
~~Lead~~
~~INH~~

(Fe)

Straw Blue

toxine

A

Thalassemia

Trait

Normal Iron Study

↓ MCV

Sideroblastic

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

↓ MCV

Chronic
any RA
Cancer
ESRD

Sideroblastic

~~Alcohol~~
~~Lead~~
~~INH~~

Thalassemia

Trait

Normal Iron Studies
Electrophoresis

α

β

Iron Deficiency
Iron

* \uparrow Fe
* Prussian Blue

Pyridoxine
ALA

↑loss

Iron

1mg/day

NOT 5-6mg/day

max 4mg/day

IRON

↓Fe

↓MCR

Chronic

Sideroblastic

~~Alcohol~~
~~Lead~~

* ↑Fe

PRUSSIAN BLUE

Pyridoxine
ALA

Thalassemia

Trans

Normal Iron

Electron

KAPLAN MEDICAL

↓ MCV

Chronic

Sideroblastic

~~Alcohol~~
~~Lead~~
~~INH~~

Thalassemia

Trait

Normal Iron Sto

Electrophoresis



\propto

*
↑ Fe

RUSSIAN BLUE

TRIOXINE

A

(GI) ↑ Loss

↓ MCV

need

Iron

1 mg/Day

Pregnant 5-6 mg/Day
Absorb max 4 mg/Day

Chronic

Any RA

→ ES RDE

0000

√ FERRITIN

↑ FERRITIN

↓ Fe

↓ Fe

↑ TIBC

↓ TIBC

Pyridoxine
AL

KAPLAN MEDICAL

(GT) → (↑loss)

Need

Iron

(1mg/Day)

Pregnant 5-6mg

Absorb max 4mg

(↓FERRITIN)

(3 Normal)

↓Fe

(I.M. IRON)

→ ↑TII

(MARROW)

Replac

↓MCR

Chronic

by RA
Cancer
RD

Sideroblastic

~~Alcohol~~
~~Lead, INH~~

* (↑Fe)

PRUSSIAN BLUE

Pyridoxine
ALA

KAPLAN MEDICAL

↓ MCV

Chronic

any RA
Cancer
ESRD

000
FETITION

↓ Fe

Sideroblastic

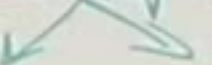
~~ho~~
~~4, 5, 6~~

Thalassemia

TRAIT

Normal Iron Studies

Electrophoresis



A

B

(GT) \uparrow loss

\downarrow MCV

Iron

1 mg/day

6 mg/day

4 mg/day

Chronic

Any RA

\rightarrow ESRD

0000

\uparrow Ferritin

\downarrow Fe

\downarrow TIBC

(1/3) Zn

J.M.
Iron

\downarrow Fe

Si

Al

Lo

\uparrow

Pruss

Pyrid

AL

KAPLAN MEDICAL

(GI) ↑loss

↓MCV

Iron

1mg/day

ESSENTIAL 5-6mg/day
Max 4mg/day

Chronic

Any RA

→ ES RD

oooo

Sideroblast

~~Also to~~

~~Lead~~

↑FERRITIN

↑FERRITIN

↓Fe

↓Fe

↑TIBC

↓TIBC

Marrow

Replace

* ↑Fe

* PRUSSIAN BL

Pyridoxine
ALA

KAPLAN MEDICAL

T Loss

Iron

1 mg / Day

EBENT 56 mg/day
75 max 4mg/day

POSITION

↓ Fe

↑ TIR

Магглов

Replace

Chrom

Any A

29

2352

5000

Foto

Sideroblastic

~~Alcohol~~

Thalesen

Trait

Normal

Elect

11

$$A = \infty$$

KAPLAN) MEDICAL

loss

Iron

mg/day

5-6 mg/day

max 4 mg/day

IRON

Fe

SC

w

Fe

↓ MCV

Iron

Sideroblastic

~~Alcohol~~
~~Lead~~

↑ Fe

RUSSIAN DIP

Orthodox

A

Thalassemia

trait

Normal Iron

Electrophoresis

\propto

$$A = 2\alpha + 2\beta$$

Loss

Iron

mg/Day

5-6 mg/day,
max 4 mg/day

IRON

Fe

SC

WT

Fe

↓ MCV

Chemist

As

→
∞
↑ Fe

Sideroblastic

~~Alcohol~~
~~Lead, etc~~

*
↑ Fe

PRUSSIAN BLUE

Riboflavin
ALA

Thalassemia

Trans

Normal Iron

Electrophoresis

$$A = 2\alpha + 2\beta$$

↓ MCV

Sideroblastic

~~Alc~~
~~Le~~

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

$$A = 2\alpha + 2\beta$$

β

$$A_2 = 2\alpha +$$

↓ MCV

Chronic

Any RA
Cancer
ESRD

000
FETTERIN

↓ Fe
TIB

Sideroblastic

A

Thalassemia

Trait

Normal Iron Studies

Electrophoresis



α

$$A = 2\alpha + 2\beta$$

β

$$A_2 = 2\alpha + 2\beta$$

$$F = 2\alpha$$

↓ MCV

Chronic

Any ~~RA~~
Cancer
ESRD

0000

↑ Ferritin

↓ Fe

↓ TIBC

Sideroblastic

ANH

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

$$A = 2\alpha + 2\beta$$

$$A_2 = 2\alpha + 2\Delta$$

$$F = 2\alpha + 2$$

KAPLAN MEDICAL

↓ MCV

Chronic

Any of
Cancer
ESRD

Sideroblastic

~~Alcohol~~
~~Lead~~

Thalassemia

TEST

Iron Studies

Trophies

↑ Ferritin

↓ Fe

↓ TIBC

↑ TIBC
↓ Ferritin
↓ Fe

Pyridoxine
ALA



KAPLAN MEDICAL

Sideroblastic

~~Alcohol~~
~~Lead~~

\uparrow Fe

PIUSSIAN Blue

Pyridoxine
ALA

Thalassemia

Trait

Normal Iron Study

Electrophoresis

$$A = 2\alpha + 2\beta$$

$$A_2 = 2\alpha + 2\delta$$

$$F = 2\alpha + 2\gamma$$

KAPLAN MEDICAL

Sideroblastic

~~Alcohol~~
~~Lead~~

TC

RUSSIAN BVA

Tidoxine
LA

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

$$A = 2\alpha + 2\beta$$

$$A_2 = 2\alpha + 2\Delta$$

$$F = 2\alpha + 2\gamma$$

Hg
HCT

B

KAPLAN MEDICAL

Thalassemia

TRAIT

Normal Iron Studies

Electrophoresis

Hg
HCT

$$A = 2\alpha + 2\beta$$

$$A_2 = 2\alpha + 2\beta$$

$$F = 2\alpha + 2\gamma$$

KAPLAN MEDICAL

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

$A = 2\alpha + 2\beta$

$A_2 = 2\alpha + 2\text{Delta}$

$F = 2\alpha + 2\text{Gamma}$

Hg
HCT

KAPLAN MEDICAL

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

Hg
HCT

$$A = 2\alpha + 2\beta$$

$$A_2 = 2\alpha + \alpha$$

$$F = 2\alpha + 2\beta$$

KAPLAN MEDICAL

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

$$A = 2\alpha + 2\beta$$

$$A_2 = 2\alpha + 2\text{Delta}$$

$$F = 2\alpha + 2\text{gamma}$$

Hg
HCT

KAPLAN MEDICAL

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

$$A = 2\alpha + 2\beta \downarrow A$$

$$A_2 = 2\alpha + 2\Delta$$

$$F = 2\alpha + 2\gamma$$

Hb
HCT



health professionals

're in the
right place

KAPLAN MEDICAL

Medical
Nurse
Nurse Practitioner

Nursing
Nurse Practitioner

Thalassemia

TRAIT

Normal Iron Studies

Electrophoresis

HbS
HbT

$$A = 2\alpha + 2\beta \downarrow A$$

$$A_2 = 2\alpha + 2\text{Delta} \uparrow$$

$$F = 2\alpha + 2\text{Gamma}$$

HAPLAN MEDICAL

Thalassemia

trait

Normal Iron Studies

Electrophoresis

$$A = 2\alpha + 2\beta \downarrow A$$

$$A_2 = 2\alpha + 2\beta \uparrow A_2$$

$$F = 2\alpha + 2\gamma \uparrow F$$

Hb
Hct

$\downarrow A \quad \uparrow B_2 \quad \uparrow F_1 =$ (Hb)
(Hct)

Thalassemia

TRAIT

Normal Iron Studies

Electrophoresis

$A = 2\alpha + 2\beta \downarrow A$

$A_2 = 2\alpha + 2\beta \uparrow A_2$

$F = 2\alpha + 2\beta \uparrow F$

Idiopathic

~~(No)~~
~~(Ca, Vit D)~~

(Fe)
SAN Blue

Axine
A

KAPLAN MEDICAL

↓ MCV

Chronic

Any RA

Cancer

ESRD

0000

↑ Ferritin

Sideroblastic

~~Alcohol~~
~~Lead~~
~~INH~~

Fe

SSIANBup

toxine

↓ A ↑ A₂ ↑ F₁ = Fls
Hem

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

A = 2α + 2β ↓ A

A₂ = 2α + 2Δ ↑ A

F = 2α + 2γ ↑ F

KAPLAN MEDICAL

↓ MCV

Chronic

Any RA

→ ESR ↑

○○○○

↑ Ferritin

Sideroblastic

~~Alcohol~~
~~Lead~~
~~INH~~

↑ Fe

ANK

XIN

↓ A ↑ A₂ ↑ F = HLs
Thalassemia

Trait

Normal Iron Studies

Electrophoresis

↓ A = 2α + 2β ↓ A

↓ A₂ = 2α + 2Δ ↑ A

↓ F = 2α + 2γ ↑ F

KAPLAN MEDICAL

↓ MCV

Chronic

Anx

→ E

↑ Fer

Sideroblastic

~~Alcohol~~
~~Lead~~

* ↑ Fe

PRUSSIAN

Iron

↓ A ↑ A₂ ↑ F₁ = (H₁)
(H₂)

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

↓ A = 2α + 2β ↓

↓ A₂ = 2α + 2Δ ↑

↓ F = 2α + 2γ ↑

KAPLAN MEDICAL

↓ MCV

Chronic

Anemia

→ E
ooo

↑ Ferr

Sideroblastic

~~Alcohol~~
~~Lead~~

*
↑ Fe

ANK

ALA

↓ A ↑ A₂ ↑ F =

Thalassemia

Trait

Normal Iron Studies

Electrophoresis

↓ A = 2α + 2β ↓

↓ A₂ = 2α + 2Δ ↑

↓ F = 2α + 2γ ↑

KAPLAN MEDICAL

↓ MCV

Sideroblastic

~~Alcohol~~
~~Lead~~

↓ A ↑ A₂ ↑ F₁ = FLS
Thalassemia
HCT

TRAIT
Normal Iron Studies
Electrophoresis

≡ ↓ A = 2α + 2β ↓ A
↓ A₂ = 2α + 2Δ ↑ A₂
↓ F = 2α + 2γ ↑ F⁺

KAPLAN MEDICAL

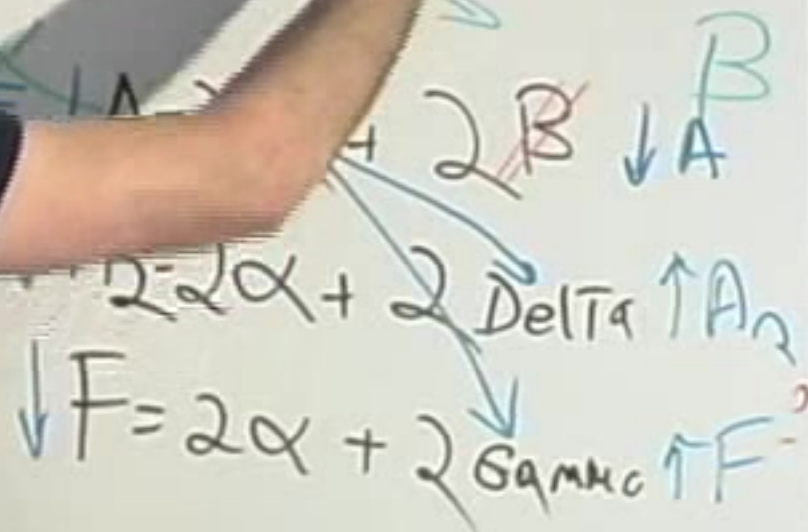
↓ MCV

Sideroblastic

~~ko~~
~~delta~~

1
2
3
4

α



KAPLAN MEDICAL

↓ MCV

Chronic

Any RA

Cancer

→ ES RD

0000

↑ Ferritin

Sideroblastic

~~Alcohol~~

~~Lead, INH~~

1 →
2 → α
3 →

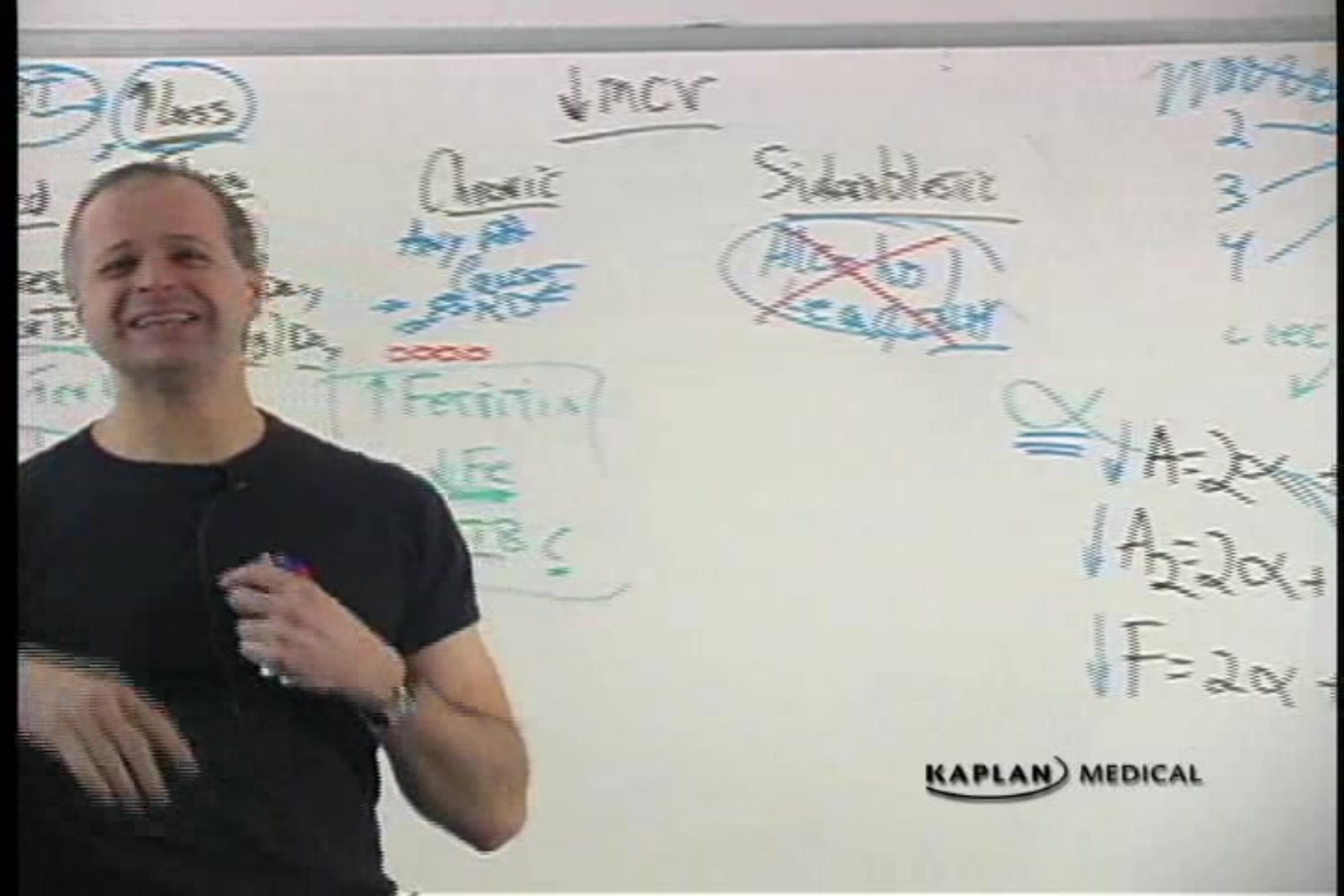
↓ HCG ↑ α, HCG ↑

↓ A = 2α + 2β ↓ A

↓ A₂ = 2α + 2 Delta ↑

↓ F = 2α + 2 Gamma ↑

KAPLAN MEDICAL



↓ MCV

Sideroblastic

Sideroblastic
~~Alc to~~
~~Fe deficiency~~

Alc to
Fe deficiency

0000

Ferritin

Fe

Fe

7/10/00

2

3

4

5

6

7

8

9

10

11

12

13

14

KAPLAN MEDICAL

↓ mcr

Acute

Sideroblastic

~~Alcohol~~
~~Lead~~

~~WBC~~

2 → α
3 → α
4 → α

electrolytes

≡

↓ $A = 2\alpha + 2\beta$ ↓ A

↓ $A_2 = 2\alpha + 2\text{Delta}$ ↑

↓ $F = 2\alpha + 2\text{Gamma}$ ↑

KAPLAN MEDICAL

↓ MCV

Chronic

Anemia

→ E

○○○○

↑ Ferritin

↓ F

↓

Sideroblastic

~~Alcohol~~

~~Lead~~

Sideroblastic

2 → α
3 → α
4 → α

electrolytes

↓ $A = 2\alpha + 2\beta$ ↓

↓ $A_2 = 2\alpha + 2\text{Delta}$ ↑

↓ $F = 2\alpha + 2\text{Gamma}$ ↑

KAPLAN MEDICAL

↓ MCV

Chronic

Any RBC

→ ESR ↑

0000

↑ Ferritin

Sideroblastic

~~Alcohol~~
~~Lead~~

Silent ~~WBC~~

2 → α
3 → α
4 → α

electrophoresis

↓ $A = 2\alpha + 2\beta$ ↓ A

↓ $A_2 = 2\alpha + 2\text{Delta}$ ↑ A_2

↓ $F = 2\alpha + 2\text{Gamma}$ ↑ F

KAPLAN MEDICAL

GI ↑ Loss

↓ MCV

Silent

need

Iron

Chronic

Any RA

Cancer

ESRD

Sideroblastic

~~Alcohol~~
~~Lead~~

Pres Absorb

Vit

↑ Ferritin

↓ A

↓ A

↓ F

(GI) ↑ Loss

↓ MCV

Need Iron

1 mg/day

Pregnant 5-6 mg/day

SDTB Max 4 mg/day

↓ FERRITIN

↓ Fe

Chronic
Any RA
Cancers
→ ESRD

0000

↑ FERRITIN

↓ Fe

↓ TIBC

(GI) ↑ Loss

↓ MCV

Silent Mild

Need

Iron

1

Pregnant

Absorb

Chronic

Any RA

Cancer

→ ESRD

0000

↑ Ferritin

↓ Fe

B₁₂

Sideroblastic

Moderate

Dead

~~Alcohol~~
~~Lead~~
~~INH~~

≡ ↓ A=

↓ A₂=

↓ F=

(GI) → (↑Loss)

Need

Iron

(1mg/Day)

Pregnant 5-6mg

Absorb Max

(↓VitC)

(3 Normal)

(↑Fe)

(↓TIBC)

(Marrow)

Replace

Chronic

Any RA

Cancer

ESRD

□□□□

↑Ferritin

↓Fe

↓TIBC

(GT) ↑loss

need Iron

1mg/day

Presumpt 5-6mg/day
Absorb Max 4mg/day

↓FERRITIN

1/3 Normal

↓Fe

→ ↑TIBC

↓MCV

Chronic

Any RA

Cancer

ESRD

↑FERRITIN

↓Fe

↓TIBC

Sideroblastic

~~Alcohol~~
~~Lead~~

Sideroblastic

Microcytic

↓ MCV

Silent ~~Wasting~~ Normal

Mild

2

α

Sideroblastic

Moderate

3

Dead

~~Alcohol~~
~~Leads to~~

↓ α ↓ β

$\downarrow A = 2\alpha + 2\beta$ $\downarrow A$

$A_2 = 2\alpha + 2\text{Delta}$ $\uparrow A_2$

$\downarrow F = 2\alpha + 2\text{Gamma}$ $\uparrow F$

GI \rightarrow Loss

Need

Iron

1 mg

Pregnant 5

Absorb Max

↓ Fertilization

Normal

↓ F

$\rightarrow \uparrow T$

Me

RA

↓ MCV

Chronic

Any RA
Cancer
ESRD

Ferritin

Sideroblastic

Alcohol
Lead
INH

Silent ~~W~~
mild 2 \rightarrow

Moderate 3

Dead 4

check

$\downarrow A = 2\alpha +$

$\downarrow A_2 = 2\alpha +$

$\downarrow F = 2\alpha +$

(GT) ↑loss

Need

Iron

1mg/day

Present 5-6mg

Absorb Max 4mg

↓ferriTIN

3normal

↓Fe

IM
IRON

→ ↑T

Mar

Ref

↓MCR

Chronic

ly RA
Cancer
SRD

Sideroblastic

~~Alcohol~~
~~Lead, INH~~

Silent War
mild 2

Moderate 3

Dead 4

≡ ↓A=2

↓A₂=2

↓F=2

KAPLAN MEDICAL

GI \rightarrow Loss

Need

Iron

1 mg/day

Pregnant 5-6 mg/day
Absorb max 4 mg/day

\downarrow FerriTIN

3 Normal

\downarrow Fe

J.M.
IRON

\rightarrow \uparrow TIBC

\downarrow \uparrow \downarrow \uparrow

\downarrow MCV

Sideroblastic

~~Alcohol~~
~~Lead~~

Silent War
mild

Moderate

Dead

$\downarrow A=2$

$\downarrow A_2=2$

$\downarrow F=2$

KAPLAN MEDICAL

GI Loss

\downarrow MCV

Site of bleed
Mild 2-

Need

Iron

Chronic

Sideroblastic

Moderate 3-

1mg/day

Prescribe 3-6m

Absorb max 4m

Vitamin

3mg/day

M. 6u

R

M

R

~~Alcohol~~
~~Lead~~

Dead

$$\downarrow A = 2\alpha$$

$$\downarrow A_2 = 2\alpha +$$

$$\downarrow F = 2\alpha$$

BT \uparrow loss

Iron
 \uparrow No
Regiment 5
or 6 Max

FerriTIN

\downarrow F

\uparrow T

Max
Ref.

\downarrow mcv

Chronic
Any RA
Cancer
ESRD

0000
FerriTIN

Sideroblastic

~~Micro~~
~~Macro~~

Silent ~~W~~ Norm

Mild 2 $\rightarrow \alpha$

Moderate 3 $\rightarrow \alpha$

Dead \times

\downarrow Lec \downarrow RBC

$\downarrow A = 2\alpha + 2B$

$\downarrow A_2 = 2\alpha + 2\Delta$

$\downarrow F = 2\alpha + 2G$

A middle-aged man with short, thinning brown hair is shown from the chest up. He is wearing a black short-sleeved t-shirt and has a thin, dark cord (likely a laryngoscope) visible around his neck. He is looking directly at the camera with a neutral expression. The background is a plain white wall, which appears to be a whiteboard. In the bottom right corner, the text 'KAPLAN MEDICAL' is displayed, with 'KAPLAN' underlined and 'MEDICAL' to its right.

KAPLAN MEDICAL

78 ♂ Office

78 ♂ Office
Tingling/numbness,
of hands/feet

78 ♂ Office
Tingling/numbness
of hands/feet
Alcoholic

78 ♂ Office
Tingling/Numbness
of hands/feet
Alcoholic
HCT 30
M CV

78 ♂
Tingling/numbness
of +/la N
Alcohol
HCT:
M CV: 1

KAPLAN MEDICAL

78 ♂ Office
Tinsling/Numbness
of hands/feet
Alcoholic
HCT: 30
MCV: 110
Smear:

B12

78 ♂ Aff
Insulin/Num
of lands/f
alcoholic
HCT: 30
M CV: 110
Smear:

B12

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

MCV: 110

Smear:

Hypers

B12

78
Tinslin
of +
Alco
HC
M CV
Sme
+

KAPLAN MEDICAL

B12

78
Tinslin
of +
Alc
HC
M CV
Sme
+

KARLAN MEDICAL

B12

78
Insulin
of +
Alcohol
HC
M CV
Sme
+

KAPLAN MEDICAL

B12

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

M CV: 110

Smear:

hypersegmented

B12

78 ♂ Af
Tingling/NUM
of hands
Alcoholic
HCT: 30
MCV: 112
Smear:
hyperse

B12

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

MCV: 110

Smear:

hypersegmented

B12

Neuro:

78 ♂ Afri
Tinsling/Num
of +lands/f

Alcoholic

HCT: 30

M CV: 110

Smear:
Hyperseg

B12

Neuro:
Peripheral

78 ♂
Tingling/
of + lan
Alcohol
HCT:
M CV:
Smear
typ

B12

Neuro:
→ peripheral

78 ♂
Tinslinol/
of + lan
Alcohol
HCT:
M CV:
Smear:
type

B12

Neuro:
→ peripheral

78 ♂ off
Tinsling/NUM
of +lands/
Alcoholic

HCT: 30
MCV: 110

Smear:
hyperse

B12

Neuro:
→ peripheral

78 d
Tinsling
of +1
Alc
HCT
M CV
Sme
+1

KAPLAN MEDICAL

B12

Neuro:
→ peripheral

78 ♂
Insulin/N
of +1 and
Alcohol
HCT: 3
MCV: 1
Smear:
hyper

B12

Neuro:
→ peripheral

78
Ting
of
A
+
m
S

KAPLAN MEDICAL



B12

78 ♂ Office
Tingling/Numbness
of hands/feet
Alcoholic

Folate

No Neu

T: 30
M: 110

near:
hypersegmented

B12

Neuro:
→ peripheral

78 ♂ Office
Tingling/Numbness
of hands/feet

No

Alcoholic

HCT: 30

M CV: 110

Smear:

hypersegmented
>4 segments

B12

78 ♂ Office

Folate

tingling/numbness
of hands/feet

No Neuro

Alcoholic

Level

HCT: 30

MCV: 110

Smear:

hypersegmented
>4 hyperseg

B12

78 ♂ Office

Folate

Neuro:

→ peripheral

Level

muscle/numbness,
tand/feet

alcoholic

T: 30

V: 110

No Neuro

Level

Replace

segment
perg

B12

Neuro:
→ peripheral
Love!

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

M CV: 110

Smear:

hypersegmented
>4 arrows

No
Low
Red

B12

peripheral
Love!

78 ♂ Office
Tinsling/Number
of +lands/fe
Alcoholic
HCT: 30
MCV: 110
Smear:
Hypersegmented
>4 A

B12

Yeuq:
→ Peripheral
Love

78 ♂ Office
Tinsling/Nunprie
of + lands/fee
Alcoholic
HCT: 30
M CV: 110

Case

7. $n \geq 4$ AN-

B12

78 ♂ Office

Folate ✓ Intake

Neuro:

Tingling/Numbness
of hands/feet

No Neuro

Sickle cell

→ ferritin

Low

Alcoholic

HCT: 30

CV: 110

Low

Repl

B12

Neuro:
→ peripheral
Level

78 ♂ Office
Tingling/numbness
of hands/feet
Alcoholic
HCT: 30
MCV: 110

Smear:
Hypersegmented
>4 hyposeg

Fol

No Ne
Level
Replac

B12

No
Neuro

78 ♂ Office
Tingling/Numbness
of hands/feet

Alcoholic

HCT: 30

MCV: 110

Smear:

Hypersegmented
>4 hypog

Folate ↓ Intake

No Neuro Sickly

Low

Replace

B12

Neuro:
→ peripheral
Level

78 ♂ Office
Tingling/Numbness
of hands/feet

Alcoholic

HCT: 30

MCV: 110

Smear:

hypersegmented
>4 hyperseg

Folate ↓

No Neuro Sig

Level

Replace

B12

78 ♂ Office

Folate

Neuro:

→ per

Low

tingling/numbness
+ hands/feet

alcoholic

CT: 30

CV: 110

No Neuro

Low

ACV

B12

Neuro:
→ peripheral
Love!

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

M CV: 110

Smear:

Hypersegmentation
> 4 segments

B12

Neuro:

=> peripheral

Lowel

↑ Methylmalonic
Acid

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

M CV: 110

Smear:

hypersegmented
>4 segments

B12

Neuro:

→ peripheral

Low

↑ Methylmalonic
Acid
level

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

MCV: 110

Smear:

hypersegmented
>4 A+P

B12

Neuro:

= peripheral

Level

Methylmalonic

Acid

level

78 ♂ 0

Insulin/No
of +land

Alcohol

HCT: 3

M CV: 11

Smear:
hyper



KAPLAN MEDICAL

B12

Neuro:

→ peripheral

Low

↑ Meth
Low
level

78 ♂ Office
Insulin/Numpt
of +lands/fe

Alcoholic

HCT: 30

M CV: 110

Smear:

hypersegment
>4 AN

B12

Neuro:

=> Peripheral

Level

↑ Methylmalonic
Acid
level

78 ♂

Insulin
of +1a

Alcohol

HCT:

M CV:

Smear
tly

B12

78 ♂

Neuro:

→ peripheral

Low

↑↑ Methy

Level

slimo/

+lan

Alcohol

HCT:

M CV:

Smear:

hyper

B12

Neuro:

= peripheral

Low

↑↑ Methylmalonic

Acid

↑↑

Replaco

Schilling's

78 ♂ Office
Tingling/Numbness
of hands/feet

Alcoholic

HCT: 30

M CV: 110

Smear:

hypersegmented
>4 hyperseg

B12

78 ♂ Office
Tingling/numbness
of hands/feet

Alcoholic

HCT: 30

M CV: 110

Smear:

Hypersegmented
>4 hyperseg

ANTI-INTRINSIC FACTOR

Yelled:
Peripheral

Corel

malonic

Acid

level

Amplaro

B12

Neuro:

=> peripheral

Level

↑↑ Methylmalonic
Acid

Level
Replaced

Schilling's: ANTI INTRINSIC FACTOR
ANTI Parietal Cells

78 ♂ Office
Tingling/numbness
of hands/feet
Alcoholic

HCT: 30

M CV: 110

Smear:

Hypersegmented
>4 A/P

B12

Neuro:
→ peripheral

Low

↑↑ Methylmalonic
Acid

Low
Replaco

- ANTI INTRINSIC FACTOR
- ANTI Parietal cells

78 ♂ Office
Tingling/Numbness,
of hands/feet
Alcoholic

HCT: 30

M CV: 110

Smear:

hypersegmented
>4 segments

B12

Neuro:

=> peripheral

Level

↑↑ Methylmalonic
Acid

Level
Replacement

Schilling's - ANTI INTRINSIC FACTOR
- ANTI Parietal cells

78 ♂ Office

Insulin/Numbrs
of hands/feet

Alcoholic

HCT: 30

M CV: 110

Smear:

Hypersegment
>4 per

B12

Neuro:

= peripheral

Level

Methylmalonic
Acid

Level
Replaced

~~Schilling~~

ANTI INTRINSIC FACTOR
ANTI Parietal cells

78 ♂ Office
Tingling/Numbness,
of hands/feet
Alcoholic

HCT: 30

M CV: 110

Smear:

Hypersegmented
> 4 segments

B12

Neuro:

= peripheral

Level

↑↑ Methylmalonic
Acid

Level
Replaco

~~Schilling~~

ANTI INTRINSIC FACTOR
ANTI Parietal cells

78 ♂ Affid
Tinsling/Nump
of +lands/f

Alcoholic

HCT: 30

M CV: 110

Smear:

Hyperse
>4

B12

Neuro:
→ peripheral

Low

↑ Methylmalonic
Acid

Low
Replaco

~~Antibodies~~

ANTI INTRINSIC FACTOR
ANTI PARIEtal cells

78 ♂ Aff
Tinsling/NUMP
of +lands/A
Alcoholic

HCT: 30

M CV: 110

Smear:
Hyperseg
>4

B12

Urg:

Peripheral

Low

Thy/malonic
Acid

Level

10

78 ♂ Aff

Insulin/Num
of hands/f

Alcoholic

HCT: 30

M CV: 110

Smear:

Hyposeg

>4

Anti Intrinsic Factor

Parietal cells

KAPLAN MEDICAL

B12

+/- Neuro:

→ peripheral

Level

↑ Methylmalonic
Acid

Level
Replaco

~~Schilling~~


ANTI INTRINSIC FACTOR
ANTI Parietal cells

78 ♂ Aff
Insulin/Num
of +lands/f
Alcoholic

HCT: 30

M CV: 110


Smear:
hyperseg
>4

A man with short, dark hair, wearing a black t-shirt, is shown in profile from the waist up. He is standing in front of a large whiteboard and pointing his right arm towards the upper right corner of the board. The whiteboard is mostly blank, with some faint, illegible markings. The man's expression is focused. The background is a plain, light-colored wall.

KAPLAN MEDICAL



KAPLAN MEDICAL

A middle-aged man with short, dark hair is speaking directly to the camera. He is wearing a black t-shirt. Behind him is a large whiteboard. The word "KAPLAN" is written on the whiteboard, with a small circle around it, and the word "MEDICAL" is written to its right. The man's mouth is open as if he is in the middle of a sentence.

KAPLAN MEDICAL



KAPLAN MEDICAL



KAPLAN MEDICAL

A man with short, light-colored hair, wearing a black t-shirt, is standing in front of a large whiteboard. He has his mouth open as if speaking. His right arm is extended towards the whiteboard, and his left hand is resting on a surface below the frame. A thin black line, possibly a cable, runs down the front of his t-shirt. The whiteboard is empty and has a metal frame. The background is a plain, light-colored wall.

KAPLAN MEDICAL

A middle-aged man with short, light-colored hair is standing in front of a large whiteboard. He is wearing a black short-sleeved t-shirt and a watch on his left wrist. His hands are clasped in front of him. The whiteboard behind him is mostly blank, with the 'KAPLAN MEDICAL' logo visible in the lower right corner.

KAPLAN MEDICAL

hemodyns:

hemodysis:

KAPLAN MEDICAL

hemodyns:

KAPLAN MEDICAL

hemodysis:
Acute

Acute

Anemia

Analysis:

KAPLAN MEDICAL

Acute
Anemia — Loss = hemolysis

Hemolysis

Ac

Acute
Anemia — Loss = hemolysis

Acute
Anemia - GI Loss = hemol

Hemolysis:

Acute

→ Acute
Anemia - GI
Loss = hemol

Hemolysis:

Acute
MCV Normal
or slightly

→ Acute
Anemia — GI
Loss

Hemolysis:

Acute
Normal
or slightly
↑ ↑

KAPLAN MEDICAL

→ Acute
Anemia — GI
Loss

Hemolysis:

Acute
MCV Normal
or slightly
↑ ↑

KAPLAN MEDICAL

→ Acute
Anemia

— G
Los

↑ Reticulocytes

Hemolysis:

Acute

(41)

→ Acute
Anemia — GI
Loss

↑ Reticulocyte

Hemolysis?

Acute
MCV Normal
or slightly
low

→ Acute
Anemia — GI
Loss =

→ ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin

Acute
Normal
or Slight
↑ ↑



KAPLAN MEDICAL

Hemolysis → ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin

Acute
MCV Normal
or slightly
↑ ↑
INTE



hemolysis → ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin
Normal
viscosity
↑
intravascular

Hemodysia

Acute
MCI Normal
or Shk

hemolysis: erythrocytes
Acute anemia hemoglobin
m

hemolysis →
acute
MCV
bin
bin




A man in a black t-shirt is speaking in front of a whiteboard. The whiteboard has handwritten notes in black marker. The notes include:

- At the top, "TRE" is written.
- Below "TRE", there are two arrows pointing up to "LD" and "B".
- To the left of these arrows, "dySI" is written.
- Below "dySI", there is a horizontal line.
- Below the horizontal line, "NORAD" is written.
- Below "NORAD", "Sksh" is written.
- Below "Sksh", there are two upward-pointing arrows.

KAPLAN MEDICAL



KAPLAN MEDICAL

A middle-aged man with short, dark hair is shown from the chest up, wearing a black t-shirt. He is positioned in front of a large whiteboard. He appears to be speaking or presenting, with his mouth open and his right hand slightly raised. The whiteboard behind him is mostly blank, with a small circular mark visible on the left side. In the bottom right corner, there is a logo for 'MAPLAN MEDICAL' where 'MAPLAN' is underlined.

MAPLAN MEDICAL



KAPLAN MEDICAL



KAPLAN MEDICAL

leucocytes
Hemolysis
Acute
Bilirubin
Haptoglobin
Molecular

hemolysis → ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin
ACUTE
MCV Normal
OR Spheritic
↑ ↑
INTRAVASCULAR

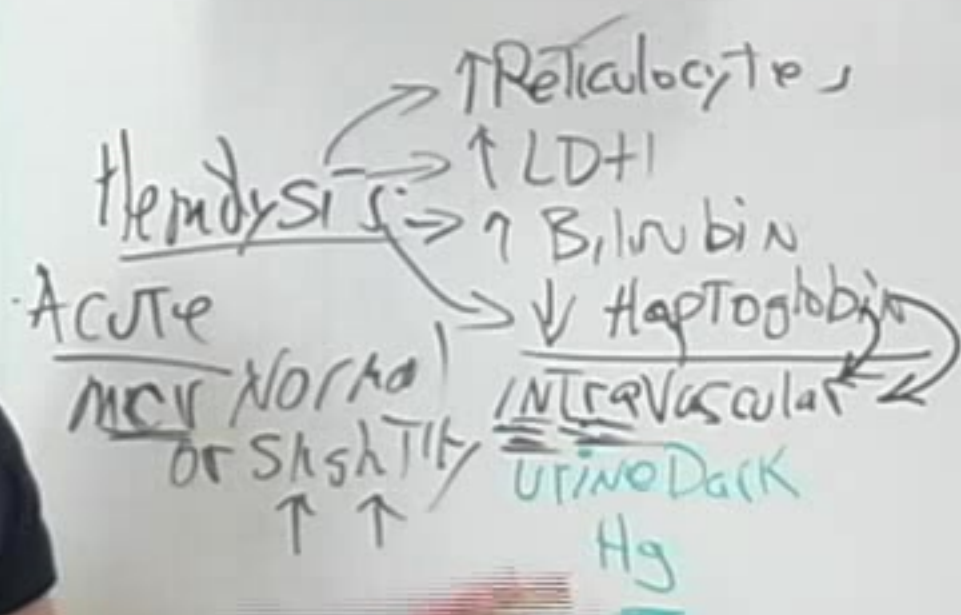


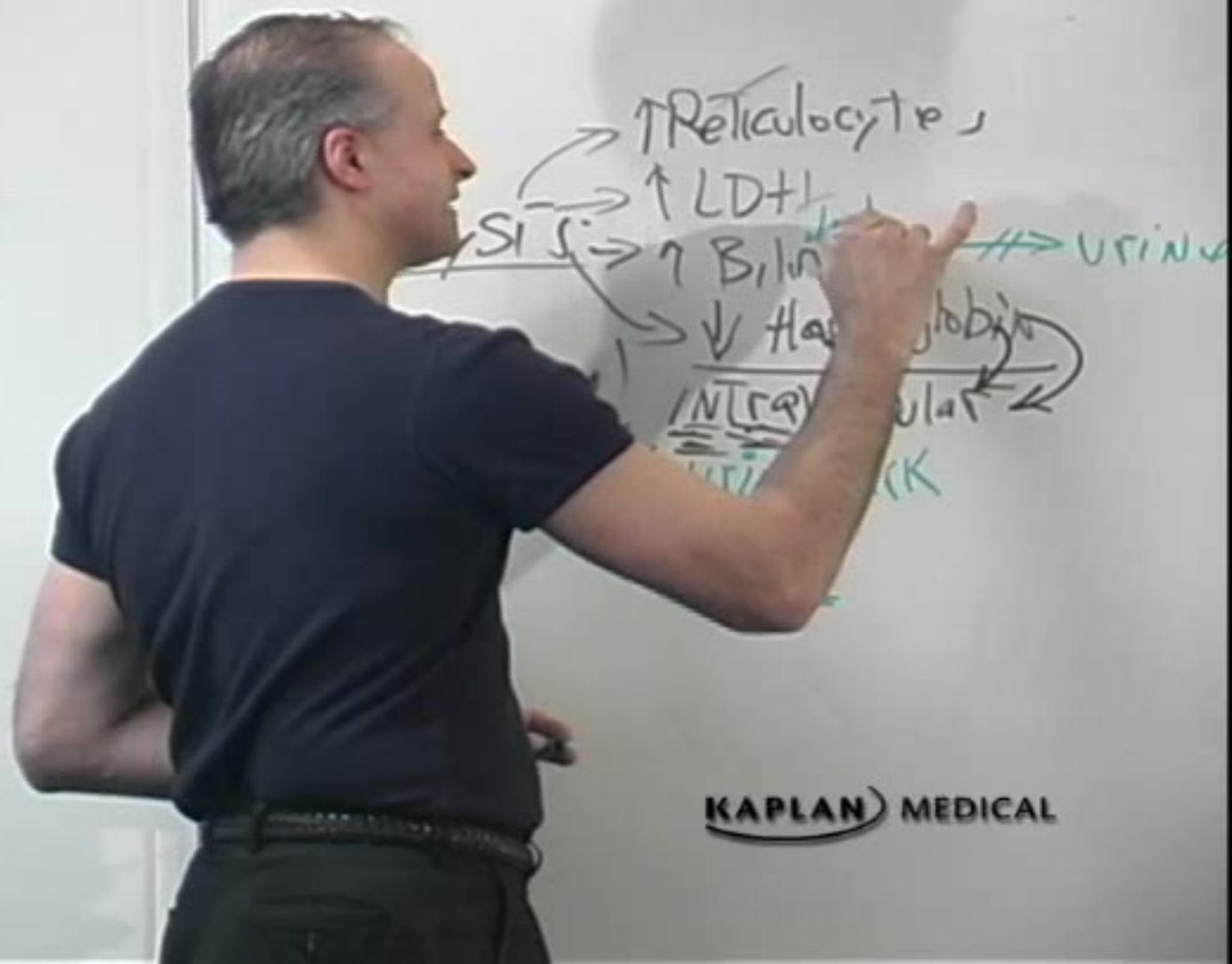
Hemolysis → ↑ Reticulocyte
 → ↑ LDH
 → ↑ Bilirubin
 → ↓ Haptoglobin
ACUTE
MCV Normal
 or slightly ↑
INTRAVASCULAR
 URINOGENIC



Hemolysis → ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin
→ INTRAVASCULAR
→ URINE Dark
Hg

ACUTE
ANEMIA NORMAL
OR SKELETAL
↑ ↑







↑ Reticulocyte

↑ LDH

↑ Bilirubin

Indirect

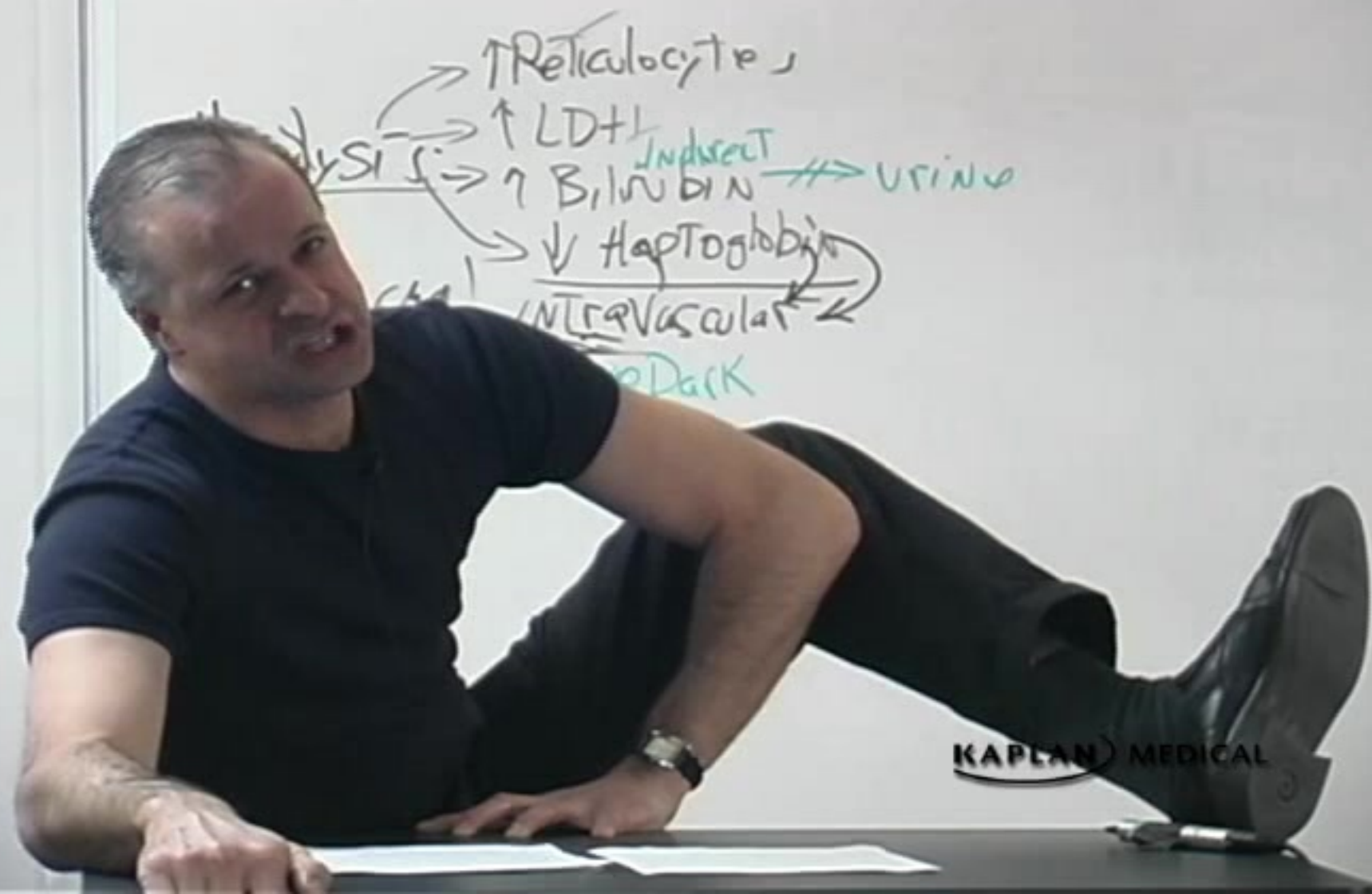
URINE

↓ Haptoglobin

INTRAVASCULAR

Dark

KAPLAN MEDICAL



↑ Reticulocyte
↑ LDH
↑ Bilirubin ^{Indirect} → URINE
↓ Haptoglobin
INTRAVASCULAR → Dark

Neutrophils
Hemolysis
Acute
LDH
Bilirubin → urine
Haptoglobin



↑ Reticulocyte
↑ LDH
↑ Bilirubin ^{Indirect} → URINE
↓ Haptoglobin
ACUTE
Normal or slightly
↑ ↑
INTRAVASCULAR
URINE Dark
Hg



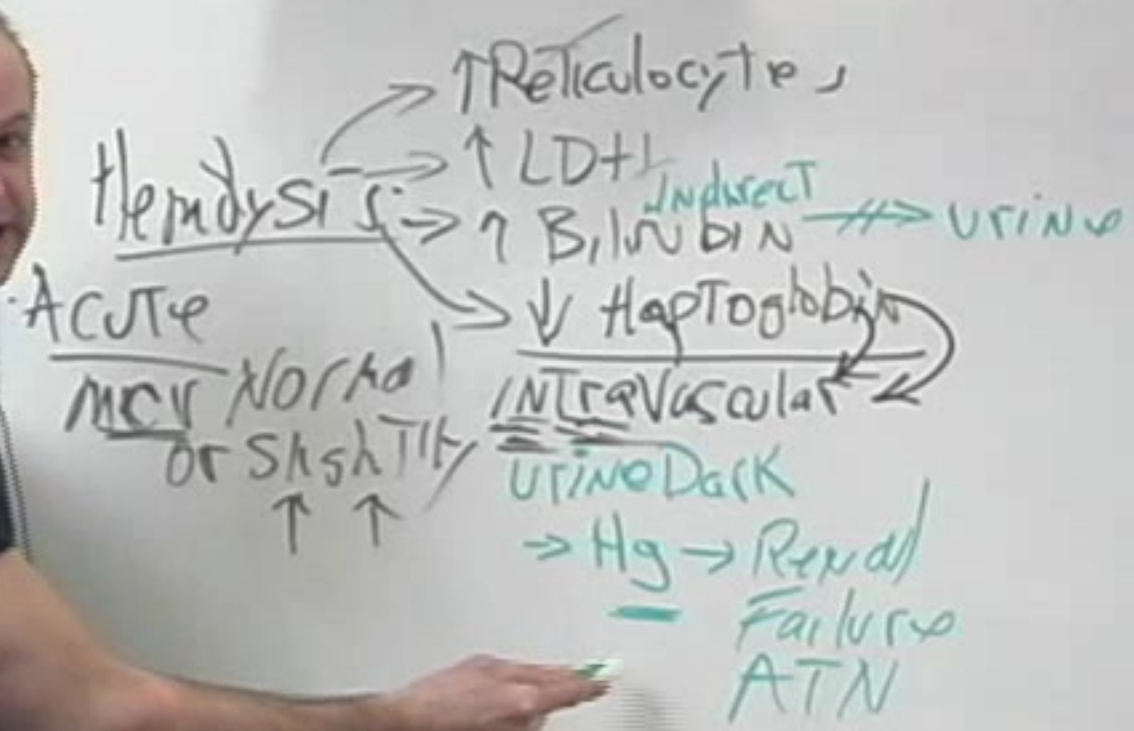
Handy Signs
→ ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin → Urine
→ ↓ Haptoglobin
Acute
NCS Normal
OR SxSx
↑ ↑
Intermittent
Urine Dark
→ Hg → Renal
Failure
ATN

Hemolysis → ↑ Reticulocyte
 → ↑ LDH
 → ↑ Bilirubin ^{Indirect} → Urine
 → ↓ Haptoglobin
 → Intravascular
 → Urine Dark
 → Hg → Renal Failure
 → ATN

Acute
 Normal
 or Slightly
 ↑ ↑

Hemolysis → ↑ Reticulocyte
 → ↑ LDH
 → ↑ Bilirubin (Indirect) → Urine
 → ↓ Haptoglobin
 → Intravascular Hemolysis
 → Urine Dark
 → Hg → Renal Failure
 → ATN

Acute
 MCV Normal
 or Shift
 ↑ ↑



Hemolysis → ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin ^{Indirect} → Urine
→ ↓ Haptoglobin
→ INTRAVASCULAR
→ URINE DARK
→ Hg → Renal Failure
ATN

Acute

Normal
or Slight
↑ ↑



Hemolysis → ↑ Reticulocyte
 → ↑ LDH
 → ↑ Bilirubin ^{Indirect} → Urine
 → ↓ Haptoglobin
 → Intravascular
 → Urine Dark
 → Hg → Renal Failure
 → ATN

Acute
 MCV
 Osmotic
 ↑



↑ Reticulocyte

↑ LDH

↑ Bilirubin

Indirect

urine

Haptoglobin

Vascular

Dark

Renal

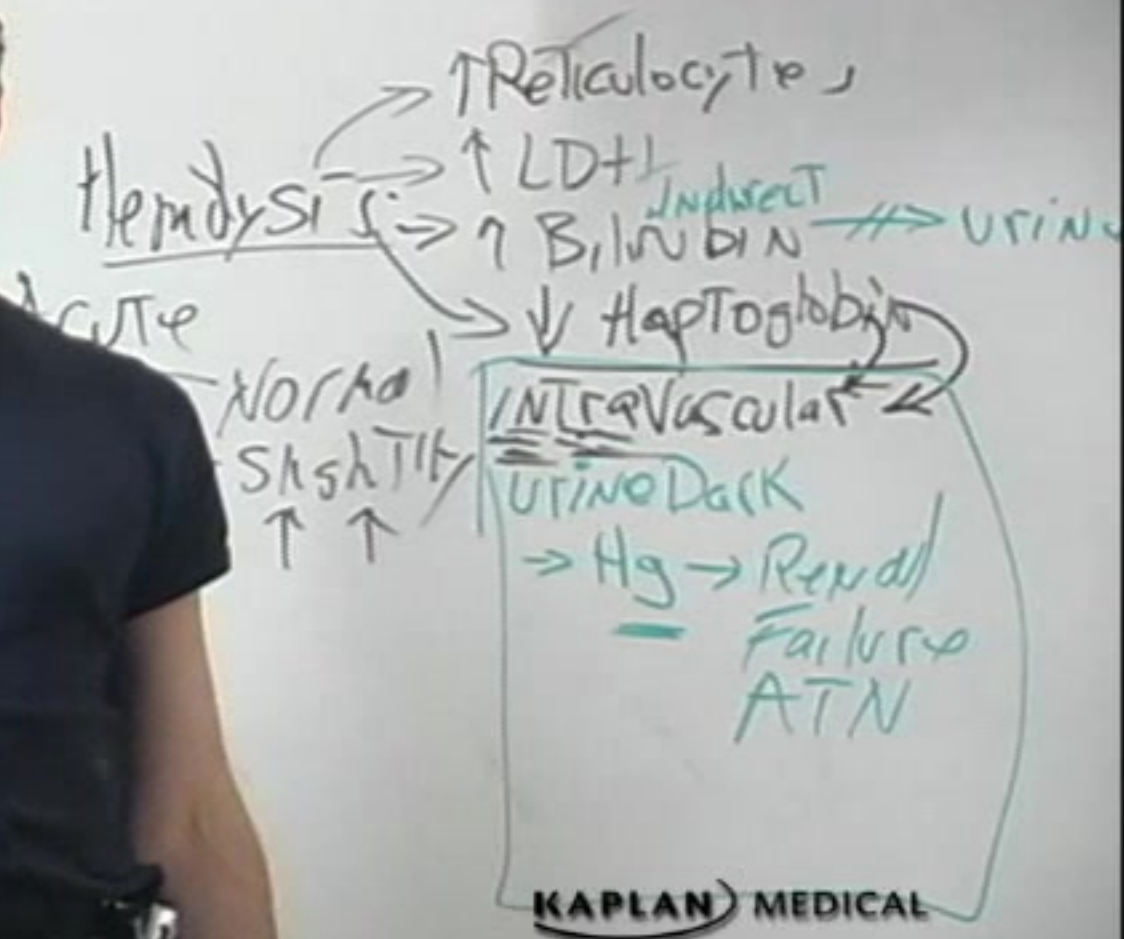
Failure

ATN

KAPLAN MEDICAL

leucocyte,
Hemolysis D+ Indirect
bilirubin \rightarrow urine
Acute
bilirubin

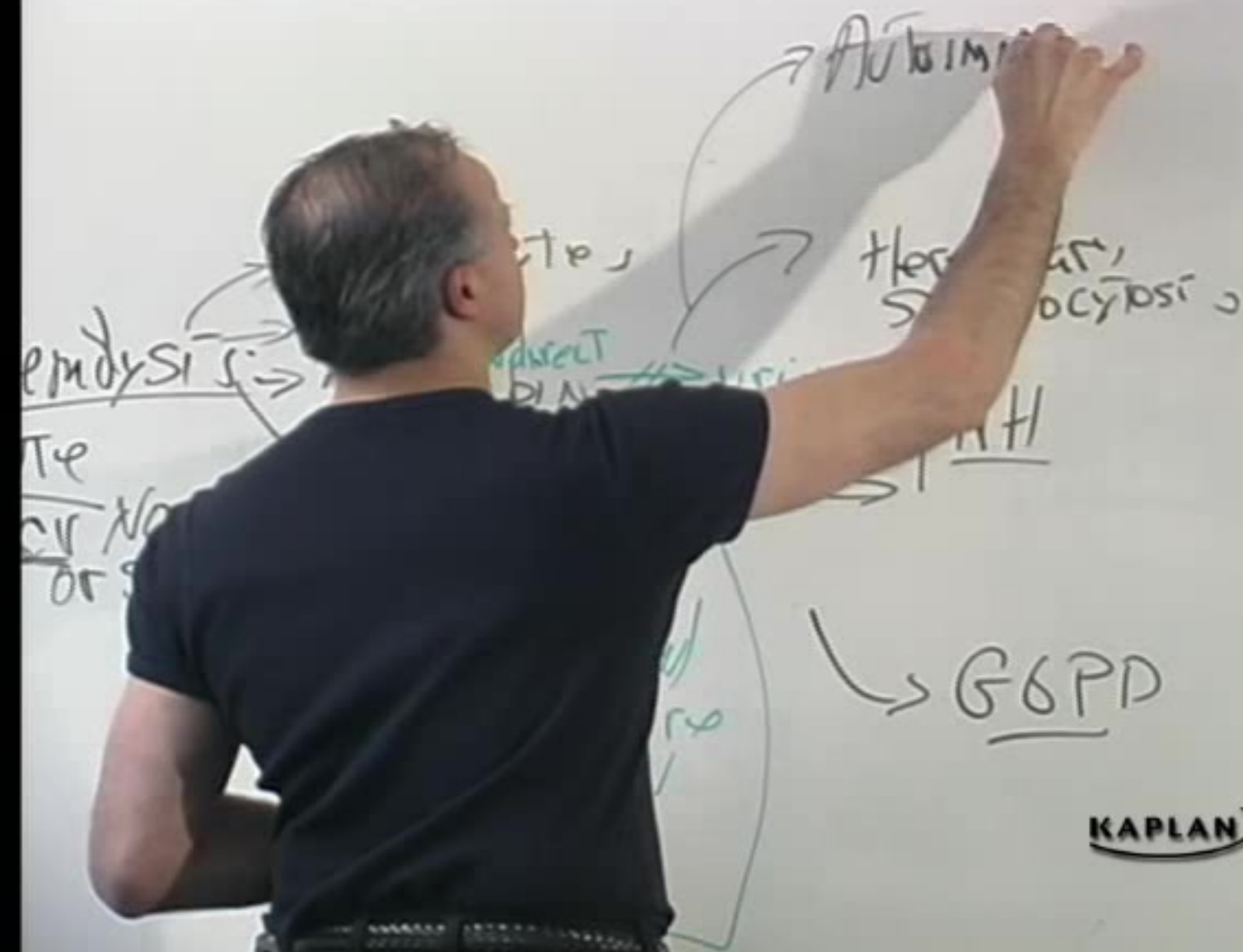
↑ Reticulocyte
Hemolysis → ↑ LDH
→ ↑ Bilirubin ^{Indirect}
→ ↓ Haptoglobin
Acute
Normal
Slight
↑ ↑
Intravascular
Urinary Dark
→ Hg → Renal
Failure
ATN





KAPLAN MEDICAL





→ Autoimmune

Eulocyte,

DL
Indirect
bilirubin

→ Urine

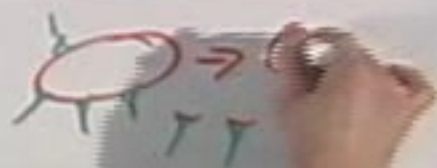
Haptoglobin

→ Vascular

no Dark

Hg → Renal
Failure
ATN

→ Autoimmune



erythrocytes

Indirect
immunoglobulin

→ Urine

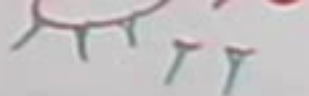
Haptoglobin

→ Vascular

no Dark

Hg → Renal
Failure
ATN

MANNA

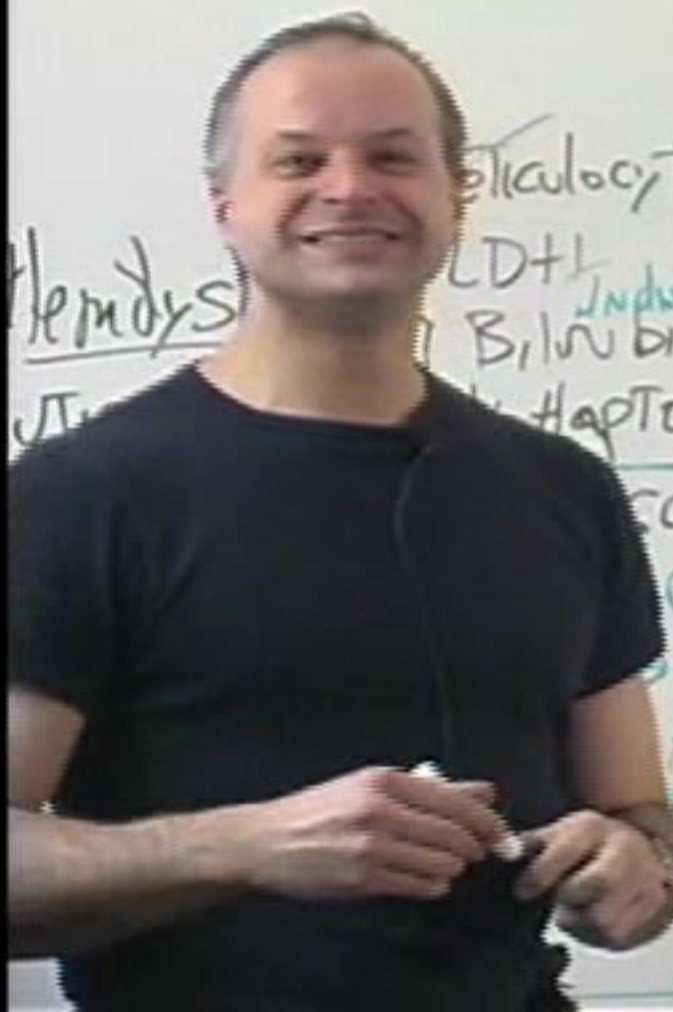


phagocytosis
phagocytosis

NH

G6PD

KAPLAN MEDICAL



Hemolysis

Erythrocyte

LDH

Bilirubin

Haptoglobin

Scavenger

CK

Renal Failure

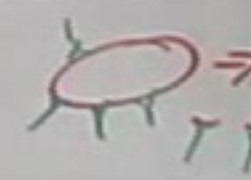
ATN

→ Autoimmune

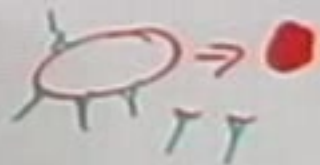
Hereditary,
Spherocytosis

PNH

→ G6PD



→ Autoimmune



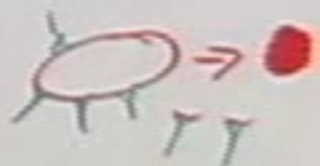
→ Hereditary,
Spherocytosis

→ Urine

→ PNH

→ G6PD

→ Autoimmune



Sickle Cell

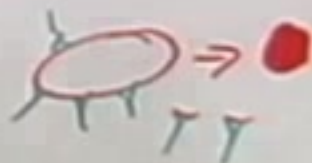
→ Hereditary
Spherocytosis

→ PNH

→ PNH

→

→ Autoimmune

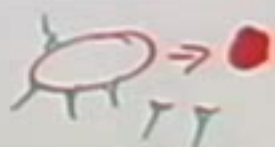


Sickle

Phenocopy

KAPLAN MEDICAL

→ Autoimmune



→ Hereditary
Spherocytosis

Sickle Cell

4807 ED Pain

Chest/Back

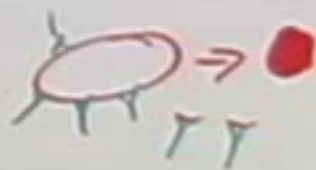
→ USIN

→ PNH

→ G6PD

KAPLAN MEDICAL

Autoimmune



Hereditary
Spherocytosis

PNH

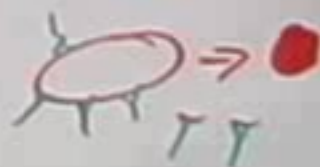
98%
99%
Sickle Cell

Sickle Cell
4807 ED Pain
Chest / Back / Thigh

→ Autoimmune



Sickle
98⁶
99%
Saturation
48 07 E
Chest / Ba



→ Autoimmune

↑ Reticulocyte

↑ LDH

↑ BUN

↓ Hemoglobin

↑ Urine

↑ Hematocrit

↑ Hemoglobin

↑ Hemoglobin

↑ Hemoglobin

↑ Hemoglobin

↑ Hemoglobin

↑ Hemoglobin

the
S
pos

KAPLAN MEDICAL

→ Autoimmune

Hereditary,
Spherocytosis

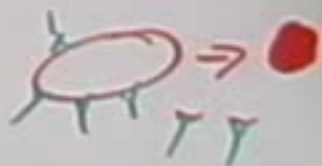
Using

PH

GDP

KAPLAN MEDICAL

→ Autoimmune



→ Hereditary,
Spherocytosis

→ ↑ Reticule

→ ↑ LDH

→ ↑ Bilirubin

→ ↓ Haptoglobin

→ Normal

→ ↑ ↑

→ ↑ ↑

2NH

PD

KAPLAN MEDICAL

→ Autoimmune

→ Hereditary Spherocytosis

→ urine

→ PNH

G6PD

KAPLAN MEDICAL

→ Thrombocytopenia
→ ↑ LDH
→ ↑ Bilirubin

Acute
MCV Normal
or slightly
↑

→ Autoimmune

→ Hereditary,
Spherocytosis

→ Urine

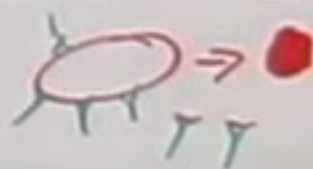
PNH

G6PD

→ Hemolysis → ↑ Retic
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ haptoglobin

Acute
MCV Normal
or slightly
↑ ↑

→ Autoimmune



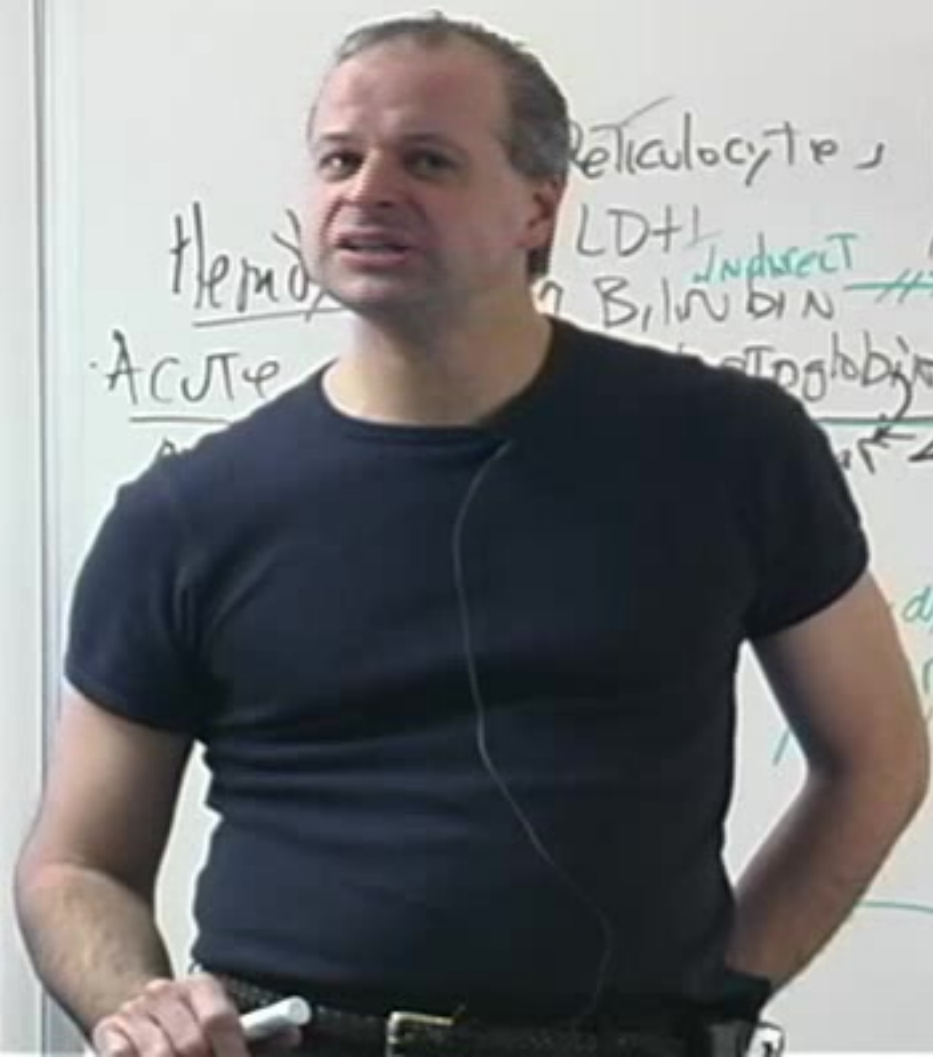
→ Hereditary
Spherocytosis

→ urine

→ Path

Sickle Cell
98%
99%
Saturation Chest/Back

- Strokes
- Ulcers
- Osteo
- Ape



Hemolysis
Acute

Reticulocyte

LDH

Bilirubin

Indirect

Urine

PNH

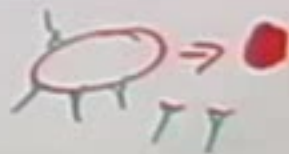
G6PD

Autoimmune

Hereditary
Spherocytosis

KAPLAN MEDICAL

→ Autoimmune



98⁶

99%

Saturation

- Strokes

0

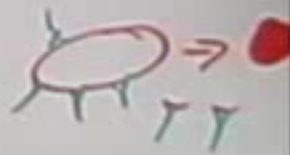
PTI'C

ECROSIS

Sickle Cell

48 07 ED Pail

Chest / Back / Th



→ Autoimmune

Hereditary,
Spherocytosis

urine

PNH

→ G6PD

↑ Reticulo

↑ LDH

↑ Bilirubin

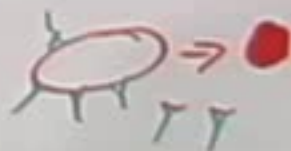
Hemolysis

Acute

MCV No

or

→ Autoimmune



98%

99%

Saturation

- Spleen
- Ulcers
- Osteo

- Septic
Necrosis

Hereditary,
Spherocytosis

PNH

G6PD

→ ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin

Induced

IN



→ Autoimmune

Hereditary,
Spherocytosis

Hemolysis → ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin

Acute

MCV Normal
or slightly
↑ ↑

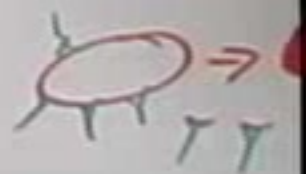
INTERVAC
UTING
→ H

→ Autoimmune



Hemolysis → ↑ Reticulocytes
→ ↑ LDH
→ ↑ Bilirubin (Indirect)
→ ↓ Haptoglobin
MCV Normal
or slightly ↑
↑ ↑
INTER
UN
2NH
Hereditary
Spherocytosis
PD

→ Autoimmune



→ ↑ Reticulocyte

→ ↑ LDH

→ ↑ Bilirubin

→ ↓ Haptoglobin

→ INTRAVASCULAR

→ URINARY

→ Hg

→ Hg

→ Hg

→ Hg

→ Hg

→ Hg

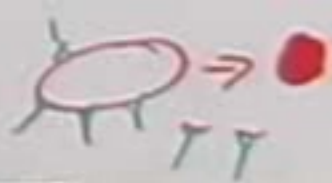
Hereditary,
Spherocytosis

→ PNH

→ G6PD

Normal
Spherocytosis
↑ ↑

IMMUNE



Sickle Cell

98⁶

99%

Saturation

48 07 ED Pain

Chest / Back / Thigh

Dx:

- Strokes

- Ulcers

- Osteo

- Apepti'c
Necrosis

Hereditary
Spherocytosis

PNH

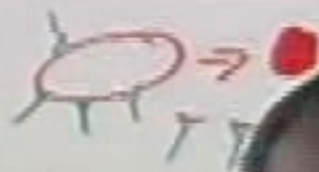
G6

Autoimmune

Hereditary,
Spherocytosis

→ PNH

→ G6PD



Sickle Cell

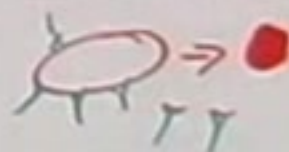
4807 ED Pain

Chest / Back / Thigh

Dx:

PHILIPIN MEDICAL

→ Autoimmune



98⁶

Sick

4807

99%

Saturation

Chesi

Dx:

- Sx

- Sx

- O₂

- Ape
Ne Cro

reticulocytes

LDH

Indirect
Bilirubin

↓ Haptoglobin

Microvascular

urine Dark

→ Hg → Renal
Failure
ATN

urine

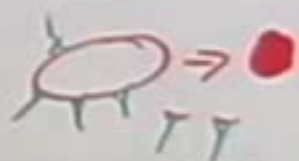
Heredit
Spher

PNH

→

KAPLAN MEDICAL

IMMUNE



Sickle Cell

98%

99%

duration

4807 ED Pain

Chest / Back / Thighs

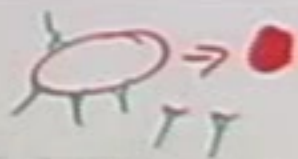
Dx: Smear Sickled
Cells

red Tars,
Phagocytosis

DNH

G6PD

IMMUNE



98⁶

99%

Saturation

- Strokes
- Ulcers
- Osteo
- Aseptic Necrosis

Sickle Cell

4807 ED Pain

Chest / Back / Thighs

Dx: Smear Sickled Cells

Fluids/O₂ | Pain
mods

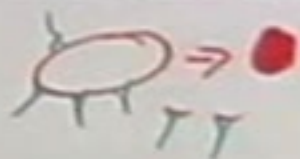
→ Autoimmune

Hereditary,
Spherocytosis

PH

GDP

KAPLAN MEDICAL



Sickle Cell

98%

48 07 ED Pain

99%

Chest / Back / Thighs

Turkey

Dx: Smear Sickled Cells

Fluids/O₂

Pain
mods

→ Autoimmune



Hereditary
Spherocytosis

→ urine

→ PNH

→ G6

Sickle Cell
98%
99%
Saturation
4807 ED Pa
Chest/Back /

- Strokes
- Ulcers
- Osteo

Dx: Smear

Fluids/O₂ | Pw
h

KAPLAN MEDICAL

→ Autoimmune



Hereditary
Spherocytosis

→ urine

direct
DIN →
Toglobin

scular

sick

→ Renal

Failure

ATN

Sickle C
98⁶
99%
Saturation
4807 ED
Chest/Back

- Strokes

- Ulcers

- Osteo

- Apeptic
Necrosis

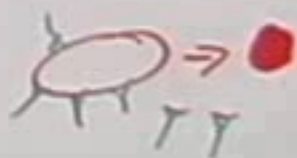
Trait

Normal Sweat

Dx: Smear

Fluids/O₂

→ Autoimmune



Sick
98%
99%
Saturation Phos

- Stomach
- Ulcers
- Osteo

Dx: S
Fluids

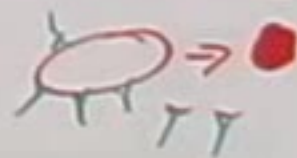
- Apeptic
Necrosis

Trait

- Normal Sweat
- Normal CBC

G6PD

→ Autoimmune



Hereditary
Spherocytes

Reticulocyte

LDH

Indirect
Bilirubin

↓ Haptoglobin

→ Intravascular

urine Dark

→ Hg → Renal
Failure
ATN

urine

PNH

98%
99%
Saturation

Sick
480

Phos

- Stroke

- Ulcers

- Osteo

- Aseptic
Necrosis

Dx: S
Fluids

Trait

Normal Smear

Normal CBC

ly P

KAPLAN MEDICAL

ACUTE

MCV Normal
or Slightly
↑ ↑

Hemolysis

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

INTERVAL

UTIMOT

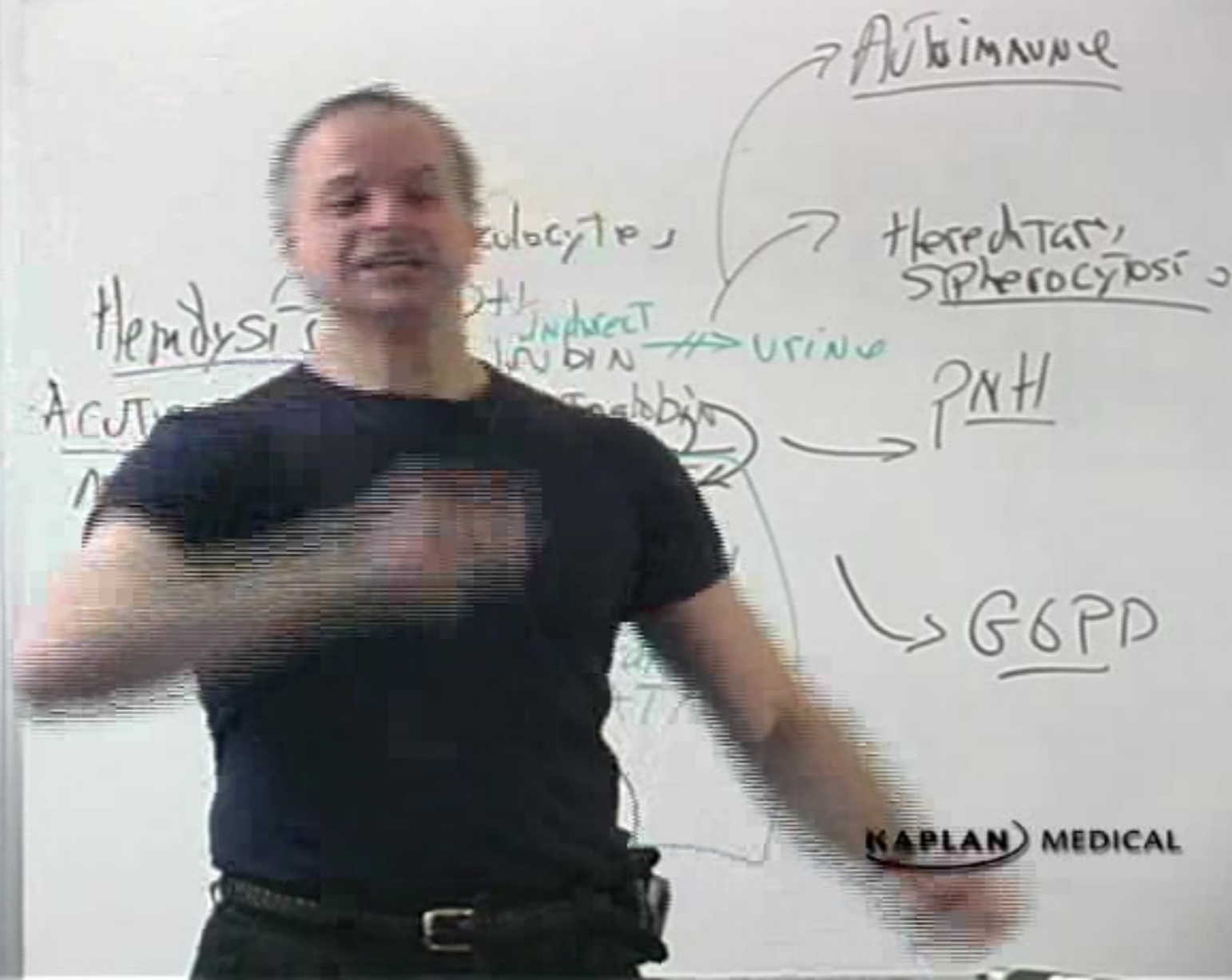
→ H

→ Autoimmune

→ Cytosis

PD

FLAN MEDICAL



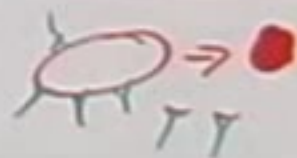
→ Autoimmune

→ Hereditary
Spherocytosis

→ PNH

→ PNH

G6PD



98⁶ Sickle C
99% 48 07 ED
Saturation Chest/Back

- Strokes

- Ulcers

- Osteo

- Abdominal
Necrosis

Dx: Smear

Fluids/O₂

Trait

• Normal Smear

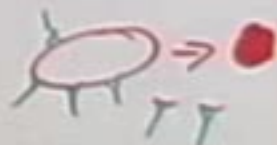
• Normal CBC

Only Renal

Iso Stenosis

KAPLAN MEDICAL

Autoimmune



Sickle Cell

98%

4807 ED Pain

99%

Saturation

Chest / Back / Thighs

- Strokes

- Ulcers

- Osteo

- Aseptic
Necrosis

Dx: Smear Sickled
Cells

Fluids/O₂

Pain
mods

Antibiotics

Treat

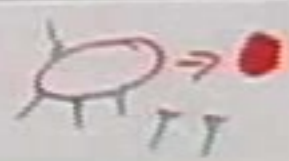
• Normal Smear

• Normal CBC

ONLY Renal

SO STENOZA

→ Autoimmune



→ ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin → Indirect → Urinary
→ ↓ Haptoglobin

→ lysis

INTERVASCULAR
↑ UTERINE
↑ ATN

98%
99%
Saturation
- Spores
- Ulcers
- Osteo
- APTIC
- Necrosis
Sick
480
Phos
DX
Fluids
Anti

Treat

- Normal Sweat
- Normal CBC
- ONLY Renal
- ISO STIMULI

KAPLAN MEDICAL



→ Autoimmune

Hereditary,
Spherocytosis

PNH

Hemolysis → ↑ Reticulocyte,
→ ↑ LDH
→ ↑ Bilirubin ^{Indirect}
→ ↓ Haptoglobin

Acute

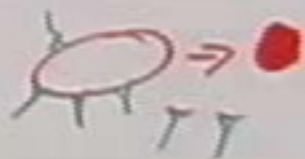
MCV Normal
or slightly
↑ ↑

INTERR

KAPLAN MEDICAL

T
- Not
- Not
Only
I so

→ Autoimmune



98%

99%

Saturation

- Strokes

- Ulcers

- Osteo

- APTIC
Necrosis

Flu

AA

Treat

• Normal sweat

• Normal CBC

Only Renal

Iso Stenosis

KAPLAN MEDICAL

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

INTERV

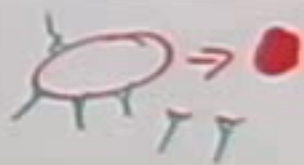
UTING

→ H

hereditary
spherocytosis

24H

Autoimmune



Hereditary
Spherocytosis

PNH

- Strokes
- Ulcers
- Osteo
- Aseptic Necrosis

Lab
renal Sweat
al CBC
Renal
ultra

98%

99%

Saturation

Sickle Cell

4807 ED Pain

Chest / Back / Thighs

Dx: Smear Sickled Cells

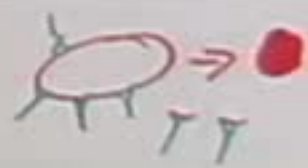
Fluids/O₂

Antibiotics → Pain meds

Fever

> 100

IMMUNE



Sickle Cell

98⁶
99%

4807 ED Pain

Saturation Chest/Back/Thighs

- Strokes
- Ulcers
- Osteo
- Apeptic Necrosis

Dx: Smear Sickled Cells

Fluids/O₂

Pain
meds

Antibiotics

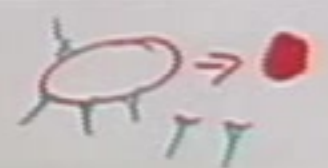
Fever
17 100³

Treat

enal SAs

so S/PNUSIA

IMMUNE



Sickle Cell

98%
99%

4807 ED Pain
Chest/Back/Thighs

Saturation

Dx: Smear Sickled Cells

Fluids/O₂

ANTHIBIOTICS

Pain
meds
Fever
 $> 100^3$

\downarrow ANC < 500

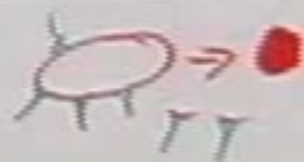
Temp > 101

predator,
phagocytosis

PNH

G6P

→ Autoimmune



Hereditary
Spherocytosis

→ Urinalysis

→ PNH

→ G6PD

Sickle Cell

98%

99%

99%

4807 ED Pairs

Phos / Back / Th

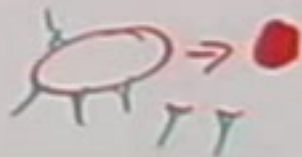
Dx: Smear

Fluids/O₂

Antibiotics

KAPLAN MEDICAL

→ Autoimmune



98%
99%

Saturations

- Strokes

osteos

- Aseptic
Necrosis

Trait

• Normal Sweat

• Normal CBC

Only Renal

Iso Stenosis

KAPLAN MEDICAL

Hereditary
Spherocytosis

Reticulocyte

LDH

↑ Bilirubin

↓ Haptoglobin

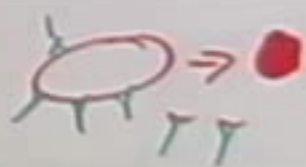
Intravascular

Urino Dark

→ Hg →

-

A



Sickle Cell

98⁶

99%

Saturation

48 07 ED Pain

Chest / Back / Thighs

Strokes

Ulcers

-Osteo

Aseptic
prosis

Dx: Smear Sickled Cells

Fluids/O₂

Antibiotics

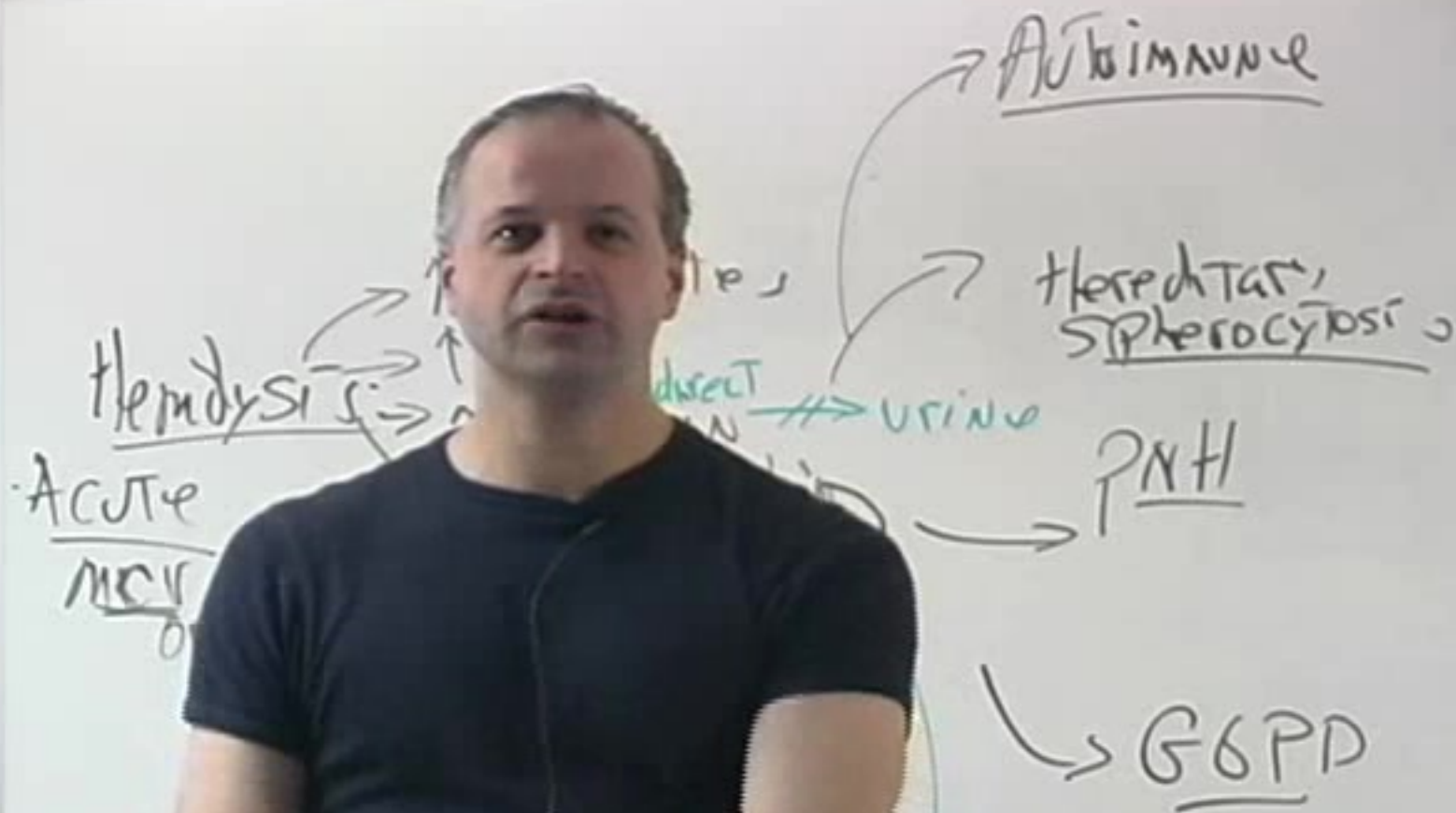
Pain
meds

Fever

$> 100^3$

3rd HD

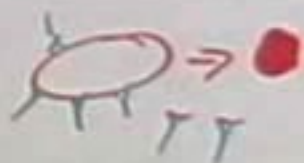
HCT 32



AVNCL

NTAR,
PROCYR

H



Sickle Cell

98⁶

99%

Saturation

48 07 ED Pain

Chest / Back / Thighs

- Strokes

- Ulcers

- Osteo

- Aseptic
Necrosis

Dx: Smear Sickled
Cells

Fluids/O₂

Pain
meds

Antibiotics

Fever

$> 100^3$

3rd HD

HCT 30 \rightarrow 22

5/3/9

NO/NO
ONLY RING

ISO STENOSSA

→ Autoimmune

→ Hereditary,
Spherocytosis

→ urine

→ PNH

G6PD

→ Hemolysis
→ ↑ LDH
→ ↑ bilirubin

• Acute
MCV Normal
or slightly ↑

Hemolysis → ↑ Reticulo → Autoimmune
 → ↑ LDH → Hereditary Spherocytosis
 → ↑ Bilirubin → 2NH
 Acute Normal or Shift
 ↑ ↑

SPD

KEPLAN MEDICAL

Sickle Cell

98⁶

99%

Saturation

4807 ED Pain

Chest/Back/Thighs

- Strokes

Dx: Smear Sickled Cells

Fluids/O₂

Pain
meds

Antibiotics

Fever

> 100³

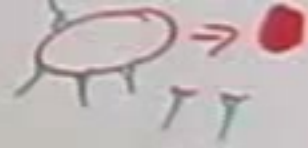
3rd HD

HCT 32 → 22

Parvovirus B19

PCR

Nel



Sickle Cell

98%

4807 ED Pain

99%

Saturation Chest/Back/Thighs

- Strokes
- Ulcers
- Osteo
- Aseptic Necrosis

Dx: Smear Sickled Cells

Fluids/O₂

Pain meds

Antibiotics

Fever

$> 100^3$

3rd HD

HCT 32 → 22

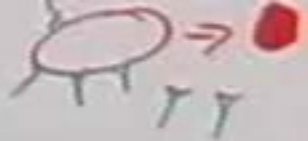
Parvovirus B19

PCR

Trait

- Normal Smear
- Normal CBC
- Only Renal
- Ulta

→ Autoimmune



Sickle Cell

98⁶

48 07 ED Pain

99%

Chest / Back / Th

Saturation

- Strokes
- Ulcers
- Osteo
- Aseptic Necrosis

Dx: Smear

Fluids/O₂

Antibiotics →

Treat

- Normal Sweat
- Normal CBC
- Only Renal
- Stenosis

3rd HD ↓
HCT 32 → 25
↓
Parvovirus B19
PCR IgM

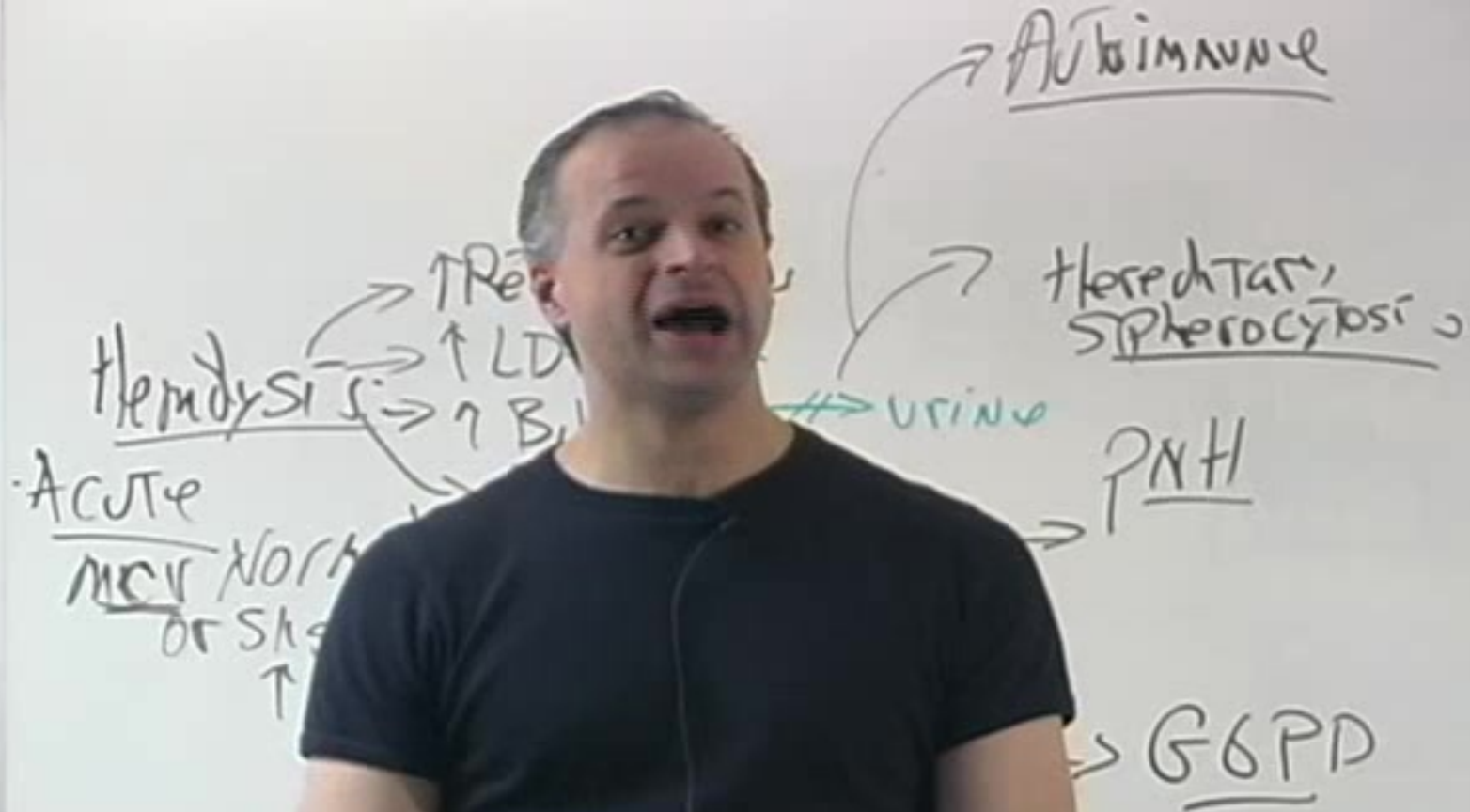
Hereditary Spherocytosis

→ Urine

2NHL

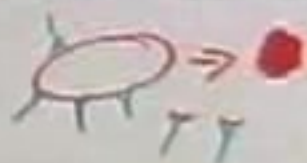








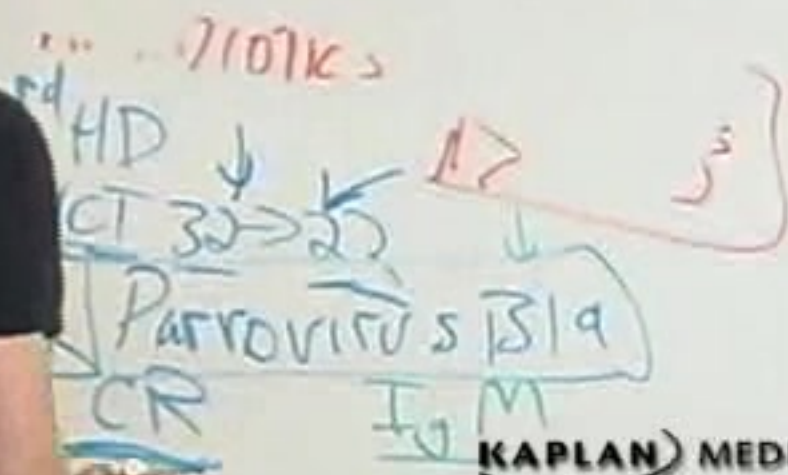


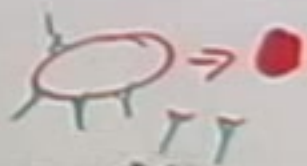


Sickle Cell

98%
99%

4807 ED Pain
Ph - / Back / thigh





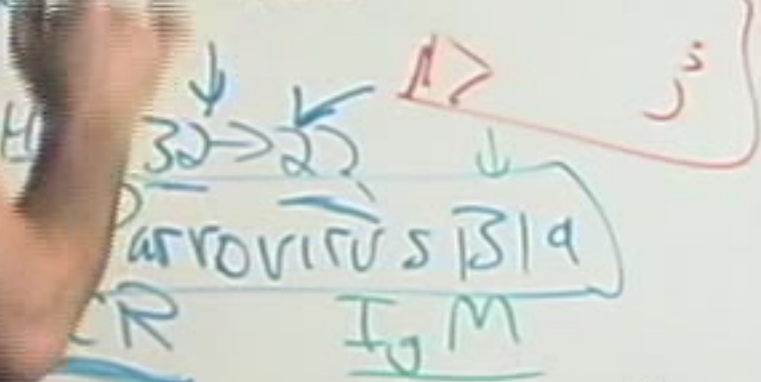
Sickle Cell

4807 ED Pain

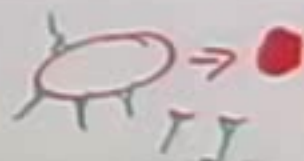
Chest / Back / thigh

→ Visual

7/07/10



BIMNUNE



Sickle Cell

48 07 ED Pain

Chest / Back / Thigh

Visual
CNS /

hereditary
spherocytosis

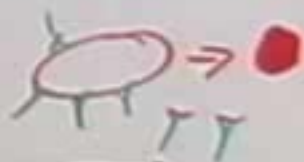
PNH

G6PD

7/07/11
12 }
↓
Parvovirus B19
PCR IgM

KAPLAN MEDICAL

Immune



Hereditary Spherocytosis

PNH

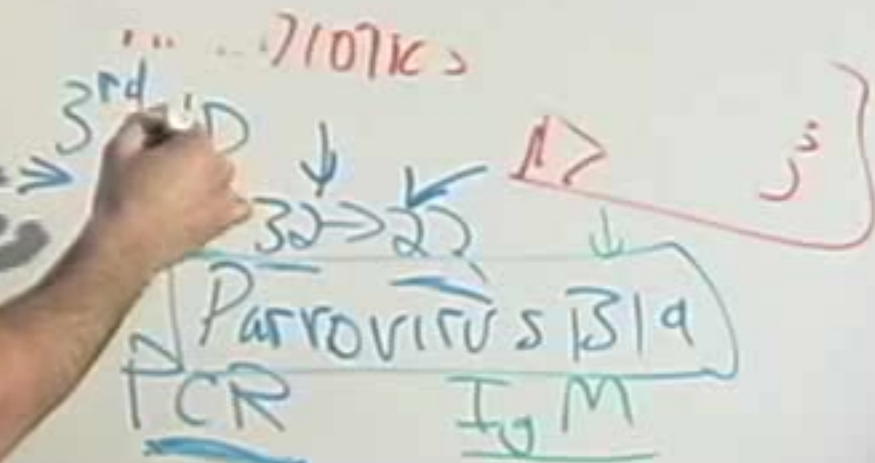
G6PD

Sickle Cell

4807 ED Pain

Chest / Back / thigh

Visual
CNS / CVA



KAPLAN MEDICAL

Acute
MCV No
or S

hemolysis

↑
↑
↑

↑
↑
↑

↑
↑
↑

↑
↑
↑

→ Autoimmune

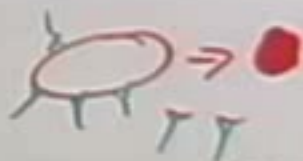
→ Hereditary Spherocytosis

→ urine

→ PNH

→ G6PD

KAPLAN MEDICAL



Sickle Cell

4807 ED Pain

Chest / Back / thigh

Visual Exclusion
CNS / CRA
Priapism

Hct 32 → 22
↓
Parvovirus B19
PCR IgM

Acute

MCV Normal
or Slightly Low

Hemolysis → ↑ Retic
→ ↑ LDH
→ ↑ Bilirubin

→ Autoimmune

→ Hereditary,
Spherocytosis

→ USING

?NH

SPD

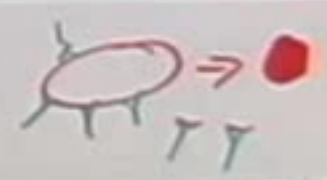
KAPLAN MEDICAL

Autoimmune

Hereditary
Spherocytosis

→ PNH

→ G6PD



Sickle Cell

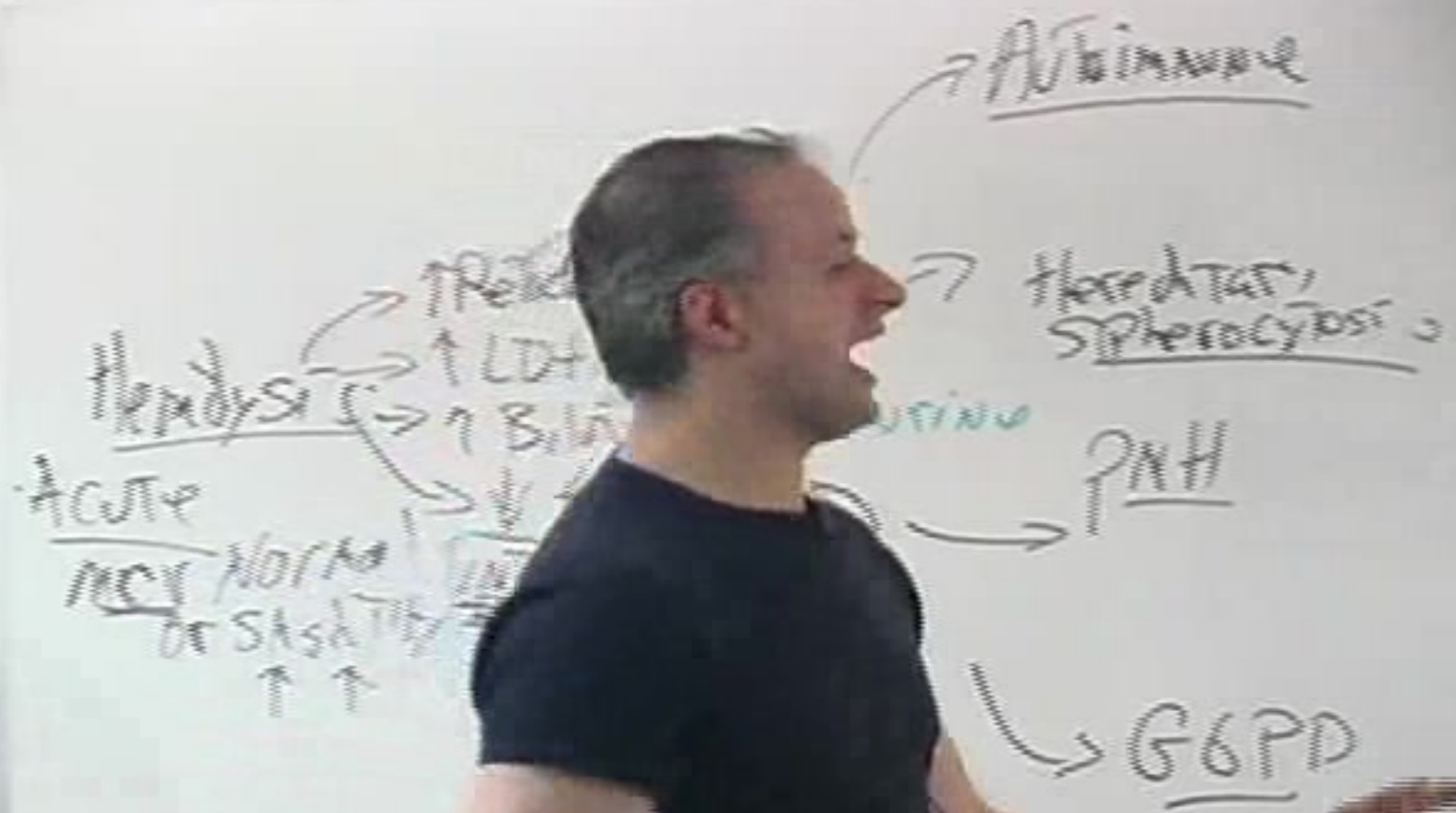
4807 ED Pain

Chest / Back / Thigh

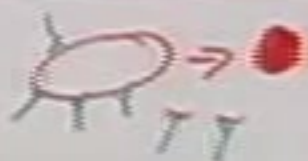
Visual Exclusion
CNS / CVA Transfusion
Hypoxia

SS → A
Tt

↓
PCR
↓
IGM



→ Autoimmune



Hydroxyurea

TREAT

- Monitor SAAAT
- Monitor CBC
- ONLY Renal

Isaiah
KAPLAN MEDICAL

Reticulocyte

LDH

Bilirubin

↓ Haptoglobin

Microangiopathy

Stimulate

→ Hg →

predator,
phagocytosis

3rd HD
HCT
↓
T2

Acute
MCV Normal
or Slight

Hemolysis

↑ Reticulocytes

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

urine

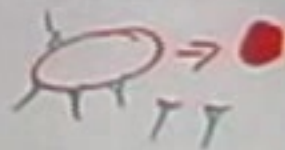
PNH

Hereditary
Spherocytosis

Autoimmune

G6PD

KAPLAN MEDICAL



→ Autoimmune

→ Hereditary
Spherocytosis

Hypochromic

↑ Reticulocyte

↑ LDH

↑ Bilirubin

Indirect → Urine

↓ Haptoglobin

→ ?NH

INTERVASCULAR

URINE DARK

Hg → Renal Failure
↑ BUN

→ G6PD

Trait

- Normal Spleen
- Normal CB
- ONLY Renal

ISOSTHENOURIA

KAPLAN MEDICAL



→ Autoimmune



→ Hereditary Spherocytosis

Hydroxy

Reticulocyte

LDH

Indirect Bilirubin

→ Urine

Haptoglobin

→ PNH

Vascular

Dark

→ Renal Failure
ATN

→ G6PD

Trait

• Normal Spleen

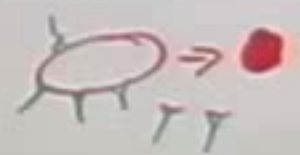
• Normal CBC

Only Renal

Iso Stenosis

KAPLAN MEDICAL

IMMUNE



Sickle Cell

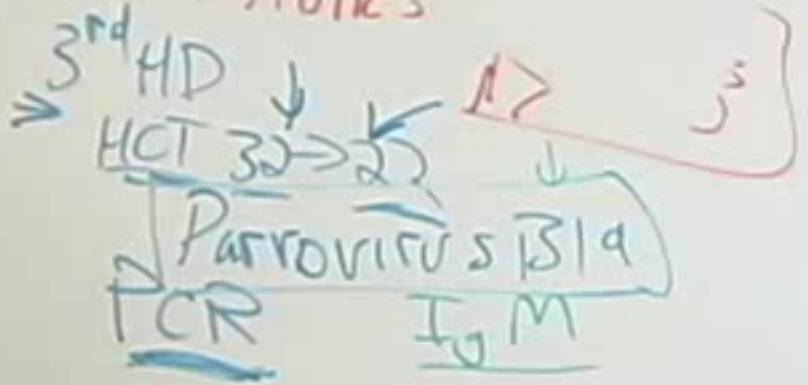
4807 ED Pain
Chest / Back / Thigh

Hydroxyurea
Prevent

Visual
CNS / CVA
Malaria

Exchange
Transfusion

SS → AS
↑
↑



Tr
tear
EBC
ONLY Renal
ISO STENOsis

Hemolysis → ↑ TRF
 → ↑ LDH
 → ↑ Bilirubin
 → ↑ Urobilinogen
 → urine

Acute
 MCV Normal
 or Slightly ↑

→ Autoimmune
 → Hereditary Spherocytosis
 → PNH

→ G6PD

• No
 • No
 ON
 ISO

KAPLAN MEDICAL

→ Autoimmune



Hereditary
Spherocytosis

Hydroxyurea
Prevent

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Hematocrit

? PTH

emolysis
↑ ↑
Normal
or slightly

SPD

Treat

- Normal Sweat
- Normal CBC
- Only Renal

ISOSTENOLIA

KAPLAN MEDICAL

→ Autoimmune



Sickle Cell

4807 ED Pain

Chest / Back / Thigh

Folate

Hydroxyurea
Prevent

Visual

Exclusion

CNS / CRA
Malignancy

Transfusion

SS → AS

Tt / 101k5

3rd HD

HCT 30 → 25

Parvovirus B19

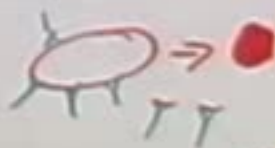
PCR

IgM

• Normal Sweat
• Normal CBC
• Only Renal
• SS Stridor

KAPLAN MEDICAL

→ Autoimmune



Sickle Cell

4807 ED Pain

Chest / Back / Thigh

Folate

Hydroxyurea

Prevent

Visual

CNS / CVA

Parapneumonia

SS → AS

Tf ↑ / 101k ↑

Exclusion

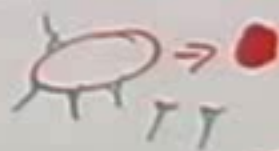
Transfusion

3rd HD ↓
HCT 30 → 22

Parvovirus B19
PCR IgM

KAPLAN MEDICAL

→ Autoimmune



Folate

Hydroxyurea
Prevent

Pneumonia

Sid

48

Phes

Vi

S

T

3rd HD

HCT

Par

PCR

at

Sneat

Normal CBC

Only Renal

Iso Stenosis

KAPLAN MEDICAL

→ ↑ Reticulocyte

→ ↑ LDH

→ ↑ Bilirubin → urine

→ ↓ Haptoglobin

INTERVASCULAR

URINE DARK

→ Hg → Renal

Fail

AT

Erythrocyte
 DTI
 Bilirubin
 Haptoglobin
 Transferrin
 Urine Dark
 Hg → Renal Failure
 ATN

Indirect → Urine

Autoimmune

These signs

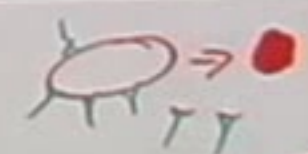


Folate
 Hydroxyurea
 Prevent
 Pneumonia

Sickle
 4807 E
 Chest / Back
 Visual
 CNS
 Paralysis
 SS → A
 T₁ / 107k

Trait
 Normal Sweat
 CBC
 Renal
 Iso Stenosis

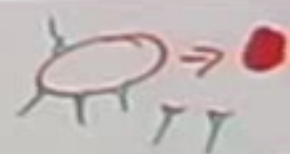
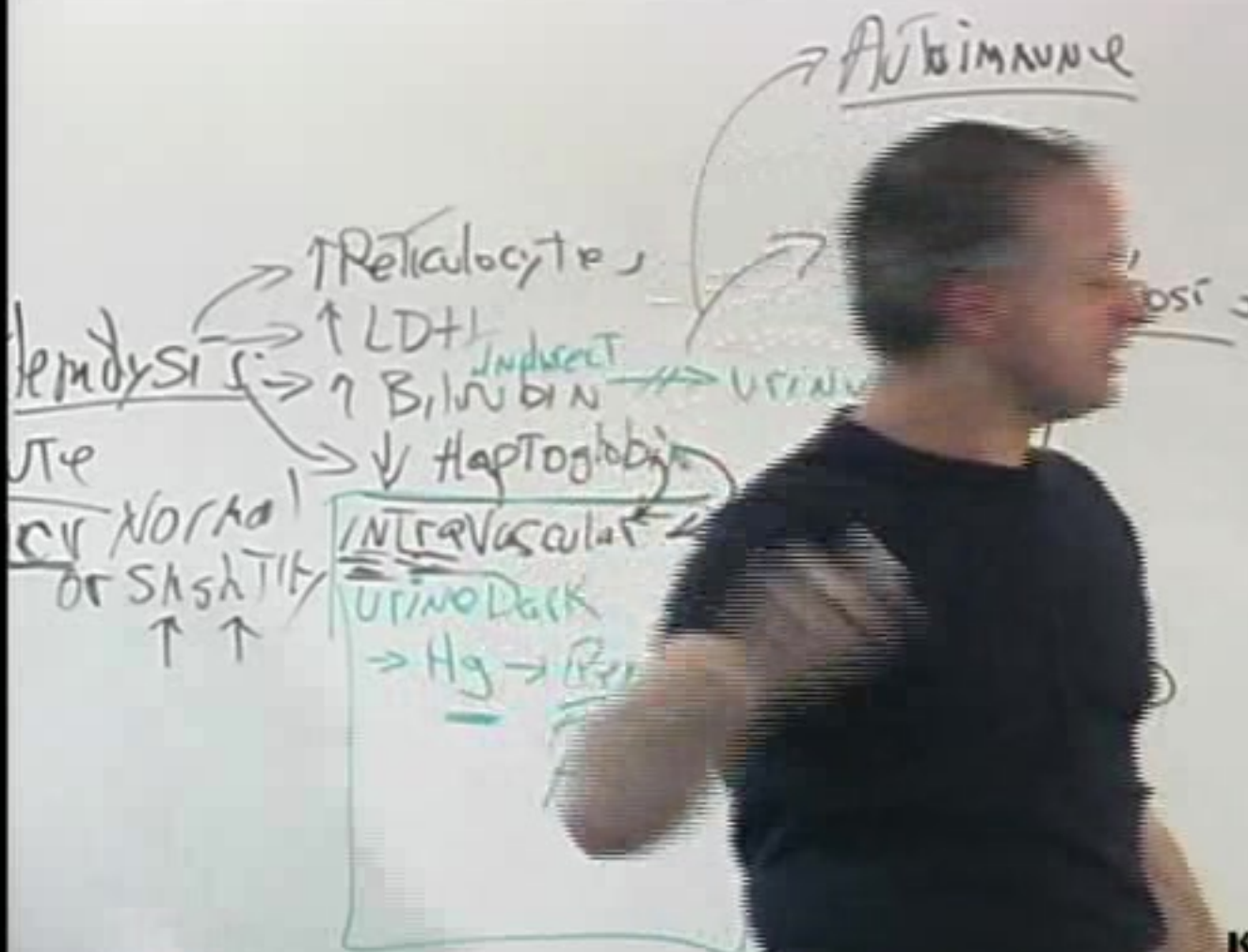
3rd HD
 HCT 32 → 2
 Parvovirus
 PCR



Folate
 Hydroxyurea
 Prevent
 Pneumonia

Treat
 • Normal Sweat
 • Normal CBC
 Only Renal
 So Strenuous

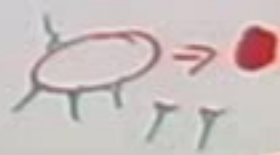
KAPLAN MEDICAL



Folate
 Hydroxy
 Prevention
 Pneumonia

Treat
 • Normal Sweat
 • Normal CBC
 Only Renal
 Iso Stenosis

→ Autoimmune



Sickle Cell

4807 ED Pain

Chest / Back / Thigh

Folate

Hydroxyurea

Prevent

Pneumovax

Visual

CNS / CVA

Mapism

SS → AS

Tt / 101k5

Exclusion

Transfusion

Trait

• Normal Sweat

• Normal CBC

Only Renal

T. S. H. N. U. S. I. A

3rd HD

HCT 30 → 25

Parvovirus B19

PCR

IgM

KAPLAN MEDICAL

Diagram illustrating the reaction of a carboxylic acid with a base:

$$\text{COOH} + \text{OH}^- \rightarrow \text{COO}^- + \text{H}_2\text{O}$$

4807

9. Visva

↓ CNS

SS =

... 75 (07)

4D

4CT 321

21/10

12 FAVOR

15

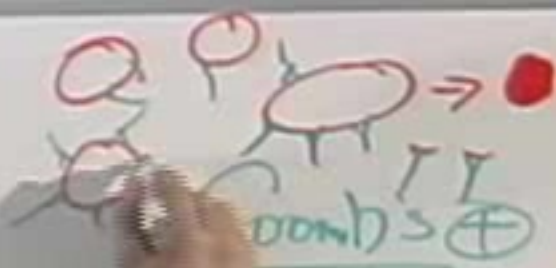
ICAL

KAPLAN MEDICAL

→ Autoimmune

hereditary,
phagocytosis

PD



Sick

48 07

chest

visu

CN

Prna

SS

TT

HD

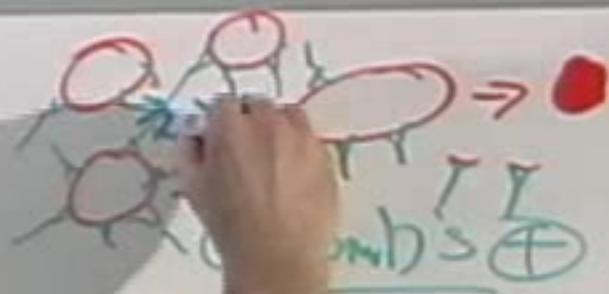
HCT 32

Parro

TCR

KAPLAN MEDICAL

→ Autoimmunity



pred TAC,
Phagocytosis

PD

KAPLAN MEDICAL

Si

4/8

Ph

a

V

S

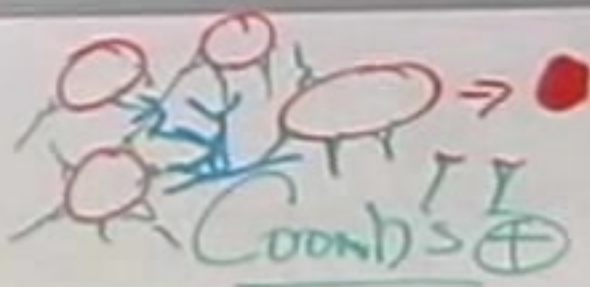
HD

HCT

Pa

PC

→ Autoimmune



→ Hereditary,
Spherocytosis

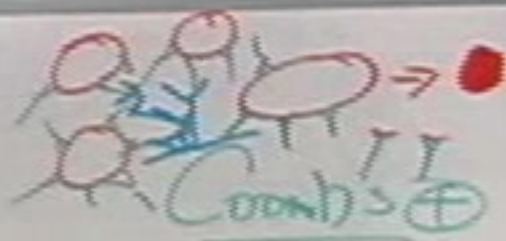
Direct Coombs test
→ Urinary

hemoglobin
→ urine

→ PNH

→ G6PD

→ Autoimmune



→ Hereditary
Spherocytosis

OSMOTIC
Fragility

Indirect
Hemoglobin → urine

Haptoglobin

→ PNH

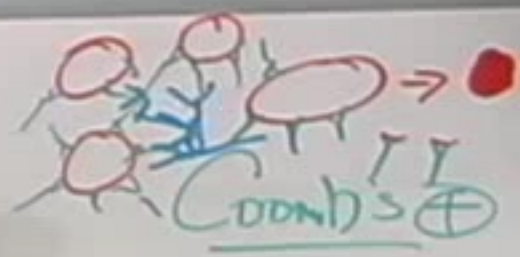
Renal

Dark

→ Renal
Failure
ATN

→ G6PD

→ Autoimmune
SLE
CELL



OSMOTIC
Fragility

phagocytosis

PNH

→ G6PD

Leukocytes

Indirect Bilirubin → Urine

→ Renal Failure
ATN

hemolysis
Acute
MCV No
of S

leucocytes
Indirect
bilirubin → urine
Haptoglobin
Vascular
Renal

→ Autoimmune
SLE
CLL RA
Hereditary
Spherocytosis
PNH
G6PD



HD → Immune

RA

Hereditary
Spherocytosis

↑ Reticulocytes

↑ LDH

→ Urinary

Haptoglobin

Intravascular

Urinary

→ Hg → Renal
Failure
ATN

PNH

G6PD

(HD)

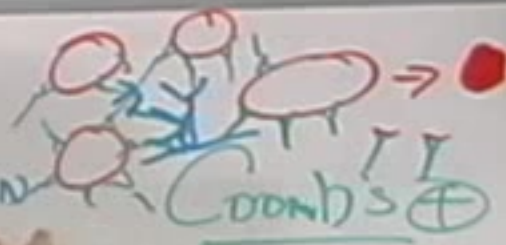
Autoimmune

SLE
CLL RA

Penicillin
Quin

Hereditary
Spherocytosis

USING



OSMOTIC
Fragility

G6PD



Hemolytic

Acute

Reticulocyte

↑ LDH

↑ Bilirubin

Indirect

↑ BUN

↑ Creatinine

↑ Ferritin

↑ TIBC

↑ Transferrin

↑ Transferrin saturation

↑ Hemoglobin

↑ Hematocrit

↑ Hemoglobin A1c

↑ Hemoglobin A2

↑ Hemoglobin F

↑ Hemoglobin S

↑ Hemoglobin C

↑ Hemoglobin D

↑ Hemoglobin E

HD

Autoimmune

SLE

CLL

Methyldopa

Hydroxychloroquine

Quinine

Quinidine

Quinacrine

Quinazolinone

Quinazolinone

Quinazolinone

Quinazolinone

Quinazolinone

Quinazolinone

Quinazolinone

Quinazolinone

Quinazolinone

Quinazolinone

Spherocytosis

PNH

G6PD

KAPLAN MEDICAL

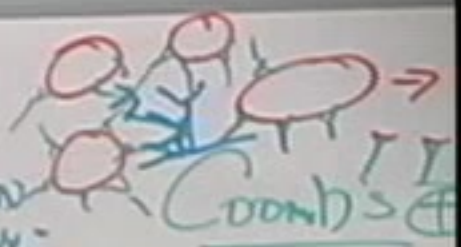
(HD)

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Hereditary
Spherocytosis



OSMOT
Frag

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↑ Hemoglobin

↑ Anisocytosis

↑ Poikilocytosis

↑ Renal Failure

↑ TN

↑ Indirect Bilirubin → Urine

↑ Hemolysis

↑ Hemoglobinuria

↑ Hemoglobinemia

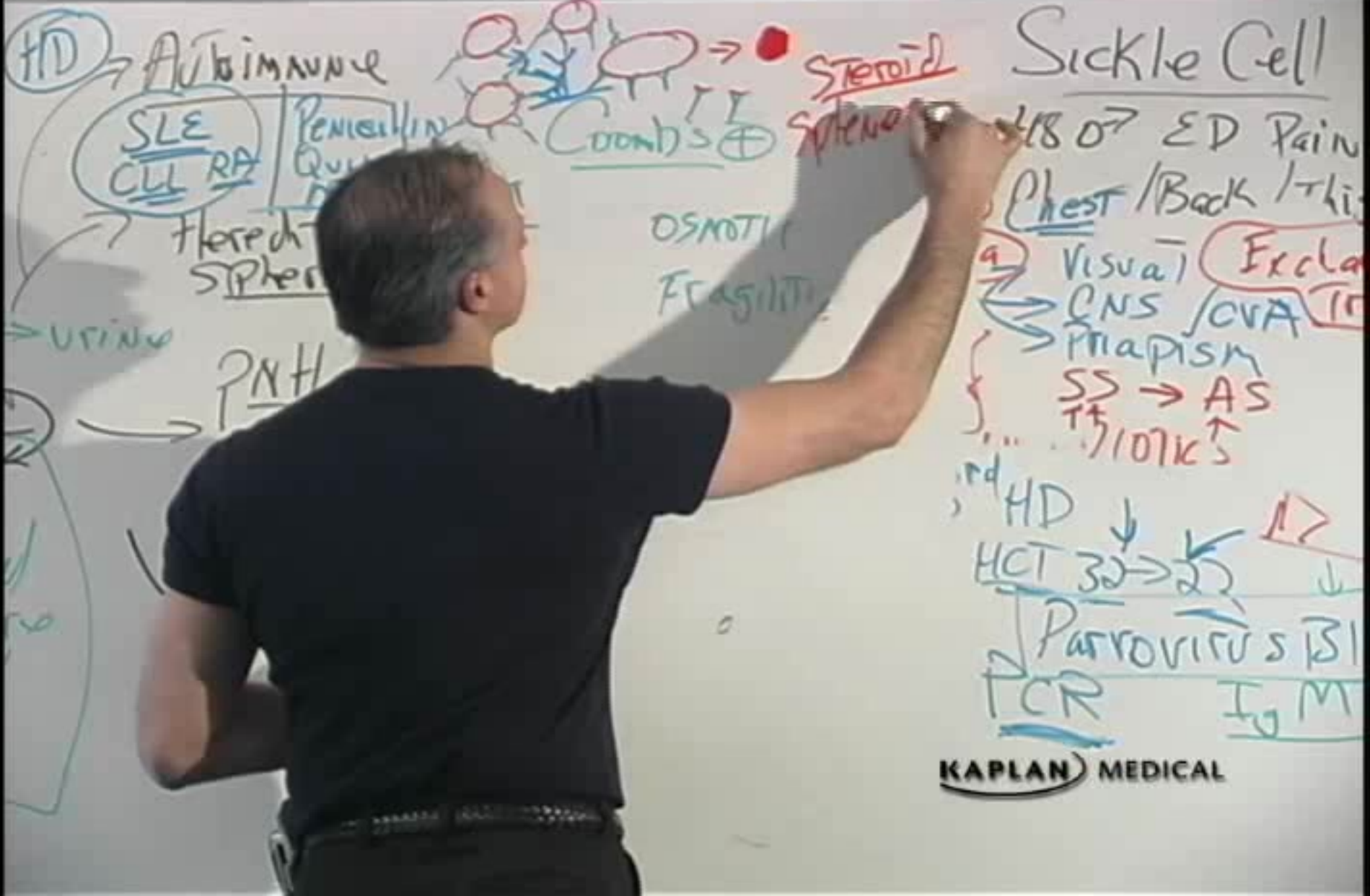
↑ Hemoglobinuria

↑ Hemoglobinemia

PNH

G6PD

KAPLAN MEDICAL



HD

Autoimmune

SLE
CLL RA

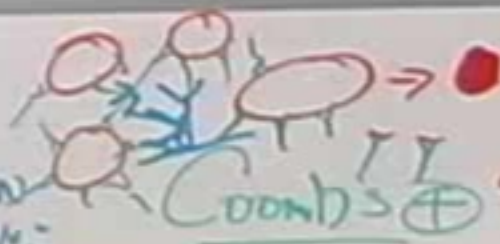
Penicillin
Quinidine
Methyldopa

Hereditary
Spherocytosis

Urine

PNH

G6PD



Steroid
Splenectomy

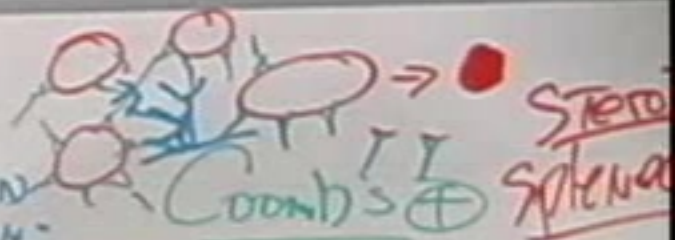
OSMOTIC
FRAGILITY

(HD) → Autoimmune

SLE
RA

Penicillin
Quinidine
Methyldopa

Hereditary
Spherocytosis



OSMOTIC
Fragility

2NH

G6PD

↑ Reticulocyte
↑ LDH
↑ Bilirubin
↓ Haptoglobin

Normal
Spherocytosis
↑ ↑

INT
U

(HD)

Autoimmune

SLE

RA

Penicillin

Quinidine

Methyldopa

Hereditary
Spherocytosis

TS

Osmotic
Fragility

Steroid

Splenectomy

4/8

Ph

a

...

...

...

HI

HCT

...

...

...

...

...

KAPLAN MEDICAL

Hemolysis
Acute
MCV

Erythrocyte
Indirect
Bilirubin
Haptoglobin

HD → Autoimmune
SLE
CLL RA
Penicillin
Quinidine
Methyldopa
Hereditary
Spherocytosis
Recurrent * Splenectomy

Failure
ATN
G6PD



Neurologie,

20

2. 3. 4. 5.

→ Heptaglobin

1945



Admission

Quelques
mélodiques

1995

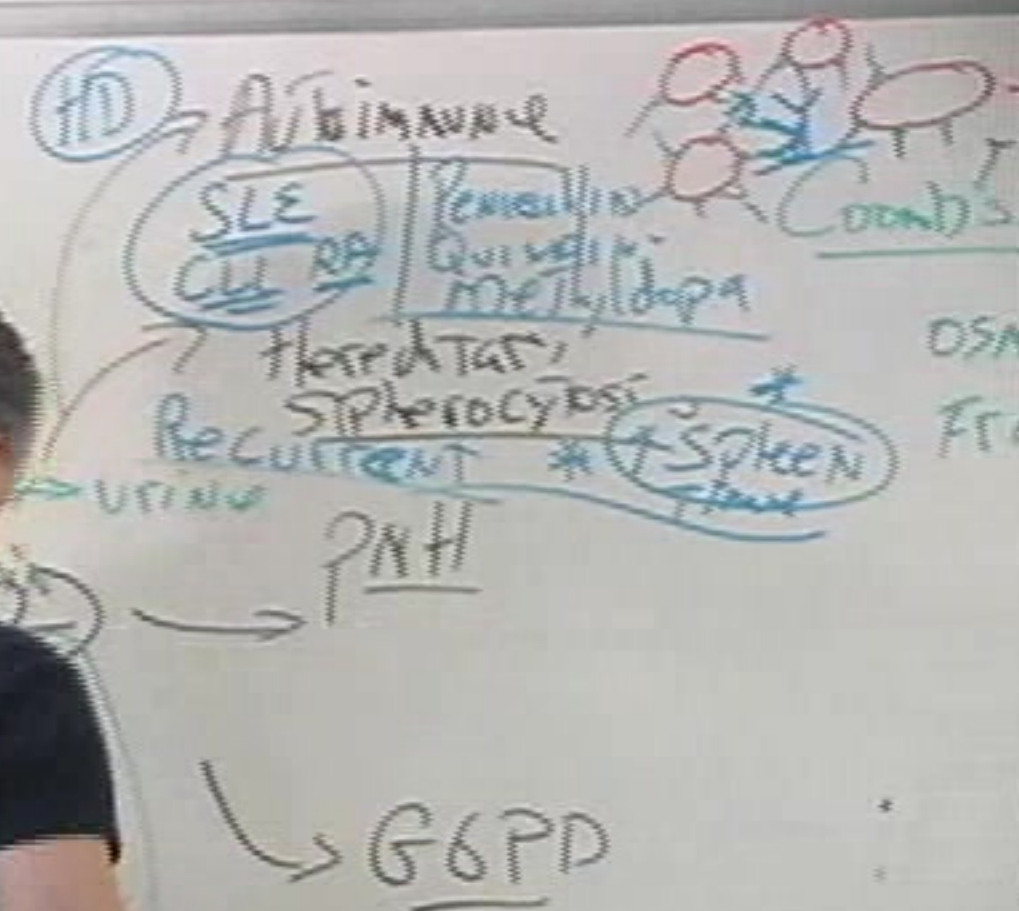
Recurrent *



25

GKPP

Hemolysis → ↑ Reticulocytes
 → ↑ LDH
 → ↑ Bilirubin
 Acute
 MCV Normal
 or slightly low





Hemolysis

Acute

leucocyte

Indirect
bilirubin

urine

G6PD

KAPLAN MEDICAL

(HD) → Autoimmune
SLE
RA
Penicillin
Quinidine
Methyldopa
Hereditary
Spherocytosis
Recurrent *
PNH

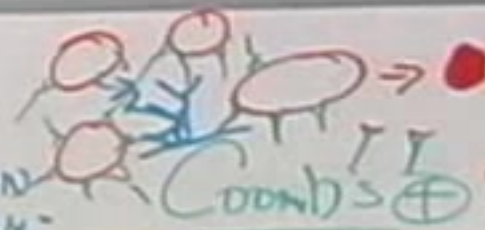
HD

Autoimmune

SLE

RA

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

Normal

Shist

↑ ↑

INTERVASCULAR
UTERINE

→ Hg →

Hereditary
Spherocytosis

Current

PNH

* Splenectomy

OSMOTIC

Fragility

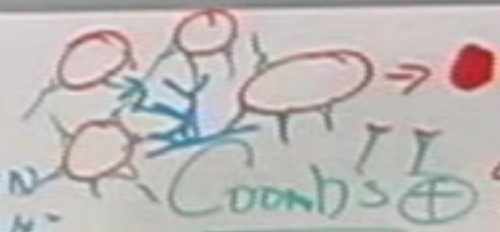
G6PD

(HD)

Autoimmune

SLE
RA

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

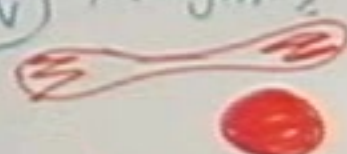
- ↑ Reticulocyte
- ↑ LDH
- ↑ Bilirubin
- ↓ Haptoglobin

Indirect

Hereditary
Spherocytosis

* Splenectomy

OSMOTIC
Fragility



2NH

INTERVALS
URINOL
→ Hg

(HD)

Autoimmune

SLE
RA

Penicillin
Quinidine
Methyldopa

Hydroxychloroquine

Phosphorylase

gent

2NH



Steroid

Splenectomy

Sickle

48 07

Chest / 15

Visual

CNS

Map

SS →

1/07

HD

HCT 30 →

Parvovirus

PCR

KAPLAN MEDICAL

(HD)

Autoimmune

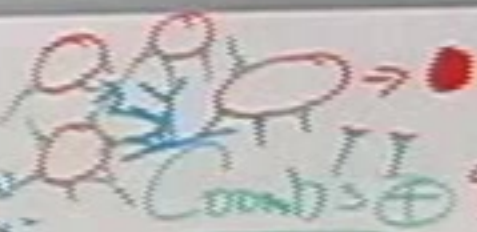
SLE

RA

Penicillin

Quinidine

Methyldopa



Steroid
steroids

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

↑ Ferritin

↑ AST

↑ ALT

Hereditary

Spherocytosis

Current

2NH

Splenectomy

OSMOTIC

FRAGILITY



Hemolysis → ↑ Reticulocyte
 → ↑ LDH
 → ↑ Bilirubin
 → ↓ Haptoglobin
 → ↑ Indirect Bilirubin
 → ↑ Spleen
 → ↑ PNH
 → ↑ G6PD
 → ↑ KAPLAN MEDICAL

HD

Autoimmune

SLE

CLL RA

Penicillin

Quinidine

Methyldopa

Hereditary

Spherocytosis

PNH

G6PD

KAPLAN MEDICAL

↑ Spleen

↑ PNH

↑ G6PD

↑ KAPLAN MEDICAL

↑ HD

↑ Autoimmune

↑ SLE

↑ CLL RA

↑ Penicillin

↑ Quinidine

↑ Methyldopa

↑ Hereditary

↑ Spherocytosis

↑ PNH

↑ G6PD

↑ KAPLAN MEDICAL

(H)

Autoimmune

SLE

Renal
Guinea
Methyl
Dopa



Spontaneous
Activation

OSMTI
Fragility



Retakocyte
↑ LDH
↑ Bilirubin
↓ Hemoglobin

INTERVAL
UTIMOD
→ Hg →
A

Phenocypsi
Splen

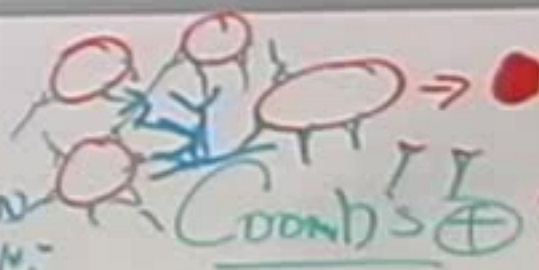
PH

(HD)

Autoimmune

SLE

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

erythrocyte

Indirect
bilirubin

Haptoglobin

AVascular

no Dark

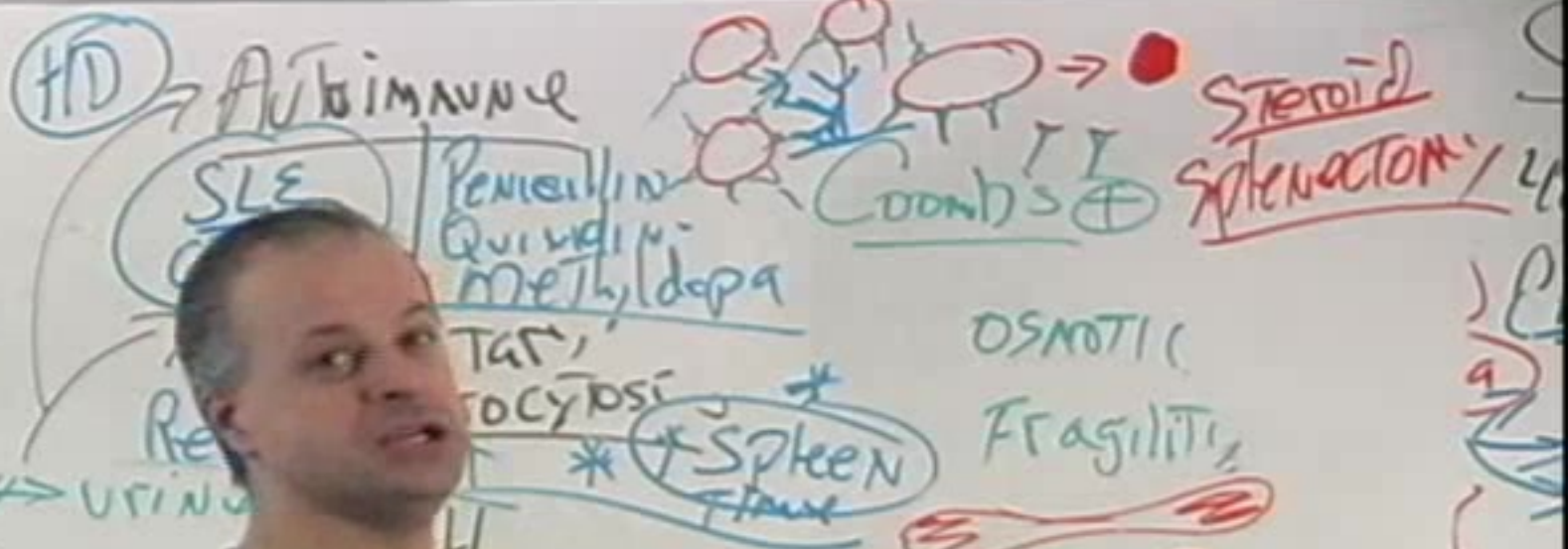
Hg → Renal
Failure
ATN

cytosis

* Spleen

OSMOTIC

Fragility

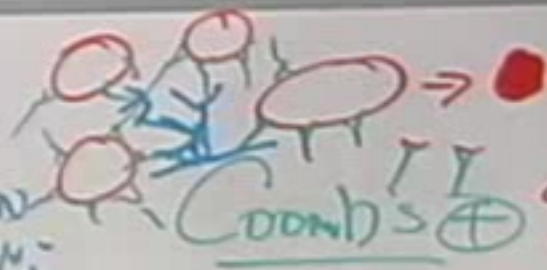


(HD)

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

Hereditary

Spherocytosis
Recurrent

* Spleen
Trans

Osmotic

Fragility



urine

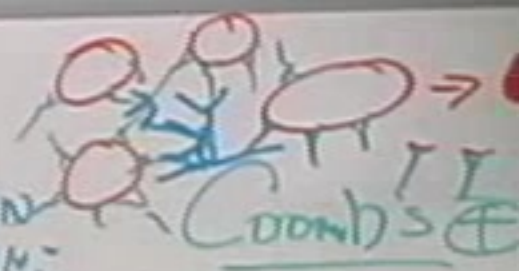
PNH

G6PD



HD

Autoimmune



SLE

Penicillin
Quinidine
Methyldopa

Coomb's

→ ↑ Reticulocytes
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin

Normal
↑ Sph
↑ ↑

INTERVAL
UTERO
→ Hg

phagocytosis

* Spleen

OSMOTIC
Fragility


HIV → Autoimmune
 SLE
 Penicillin
 Quinidine
 Methyl dopa
 Steroid
 Splenectomy
 Osmotic
 Fragility
 Reticulocyte
 ↑ LDH
 ↑ Bilirubin
 Indirect
 ↓ Haptoglobin
 Intravascular
 Hemolysis
 → Hg →
 Splenic
 Tissue

Suckle Cell
TOP / 45 of ED Rein
Back High
Nose / Endocrine
QMS / Transcription
Thapsin
SD → AS
Thapsin
HD
HCT → AD
Hormones / AD
Hormones / AD





KAPLAN MEDICAL



KAPLAN MEDICAL





KAPLAN MEDICAL



Autism

SLE
CLL RA

Penetration

$$2 \frac{1}{2} = 2 \frac{1}{2}$$

11/14/10

DDND

Hereditas

Spherocytosis

CLUTTER

* DYKEN

2NH

the analysis

Thrombocyte

 \uparrow LDH

→ B, W, D, N


Insert

 $\geq \frac{1}{2} \log T$

СЛФ

MCV North

Dr SASHIT



UVA

5

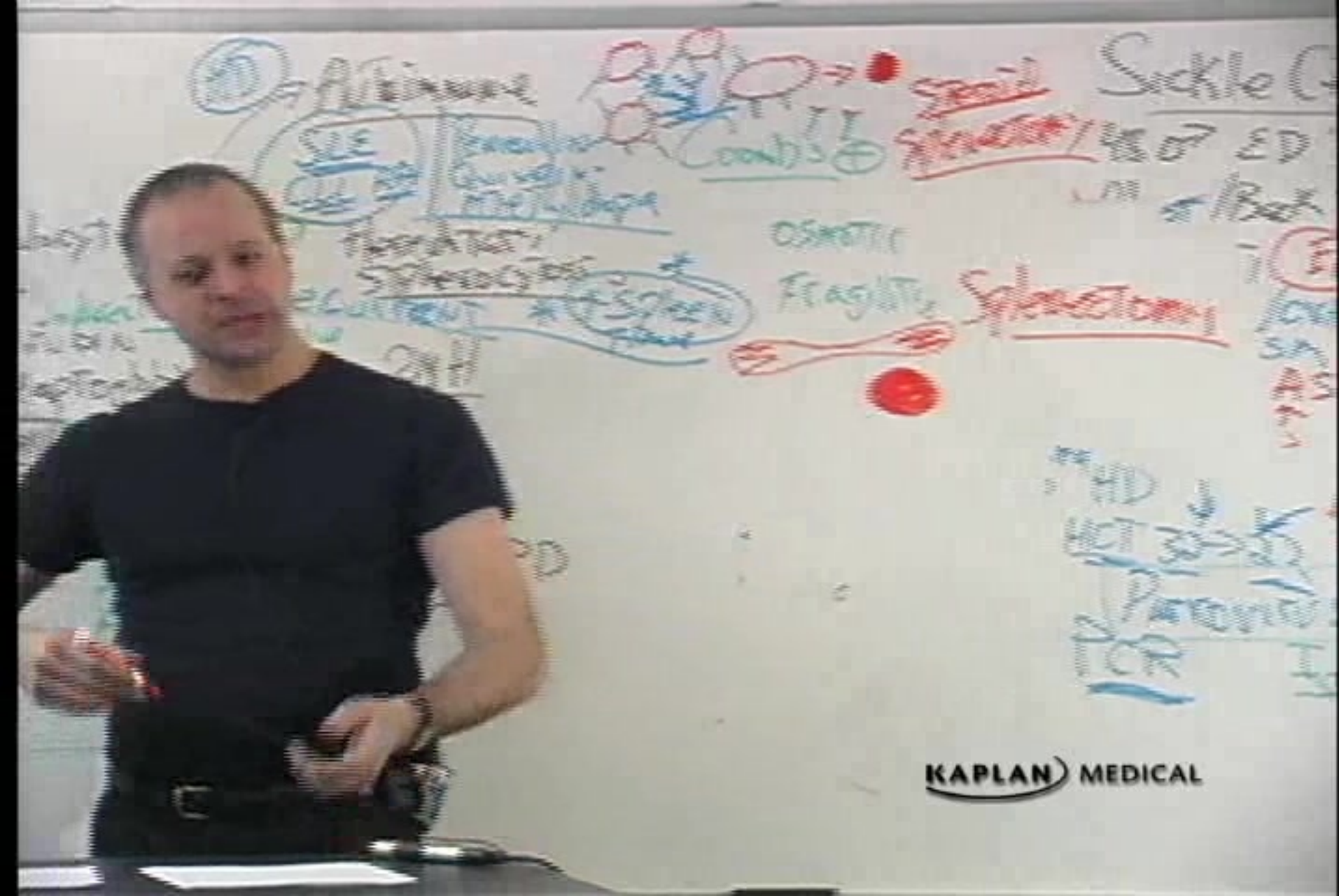
G6PD

KAPLAN MEDICAL





(HD) → Autoimmune
 SLE
 Penicillin
 Quinidine
 Methyl dopa
 AT
 CYP2C9
 * Spleen
 * Platelet
 Osmotic
 Fragility
 Steroid
 Splenectomy 4/8 07
 Chest
 Visual
 CNS
 PNA
 SS
 T4
 7/07
 HD
 HCT 30 →
 Parvovirus
 PCR
 Reticulocyte
 LDH
 ↑ Bilirubin
 ↓ Haptoglobin
 IntraVascular
 URINODARK
 → Hg → Renal
 Failure
 ATN
 PD







KAPLAN MEDICAL

Hemolysis :-

Acute

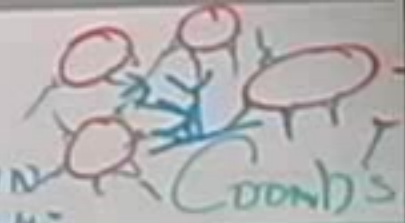
MCV Normal
or Slightly ↑

(HD)

Autoimmune

SLE
CLL RA

Penicillin
Quinine
Methyldopa



Hereditary

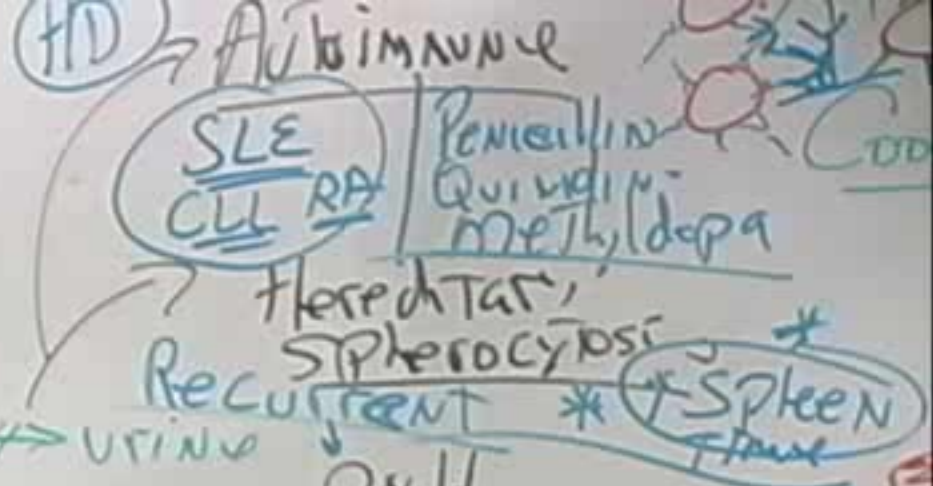
Spherocytosis
Recurrent

* Splenic
Tissue

urine

PNH

G6PD



hemolysis

Acute

MCV

or S

Indirect bilirubin → Urine

Haptoglobin

Vascular

Dark

Renal

PNH

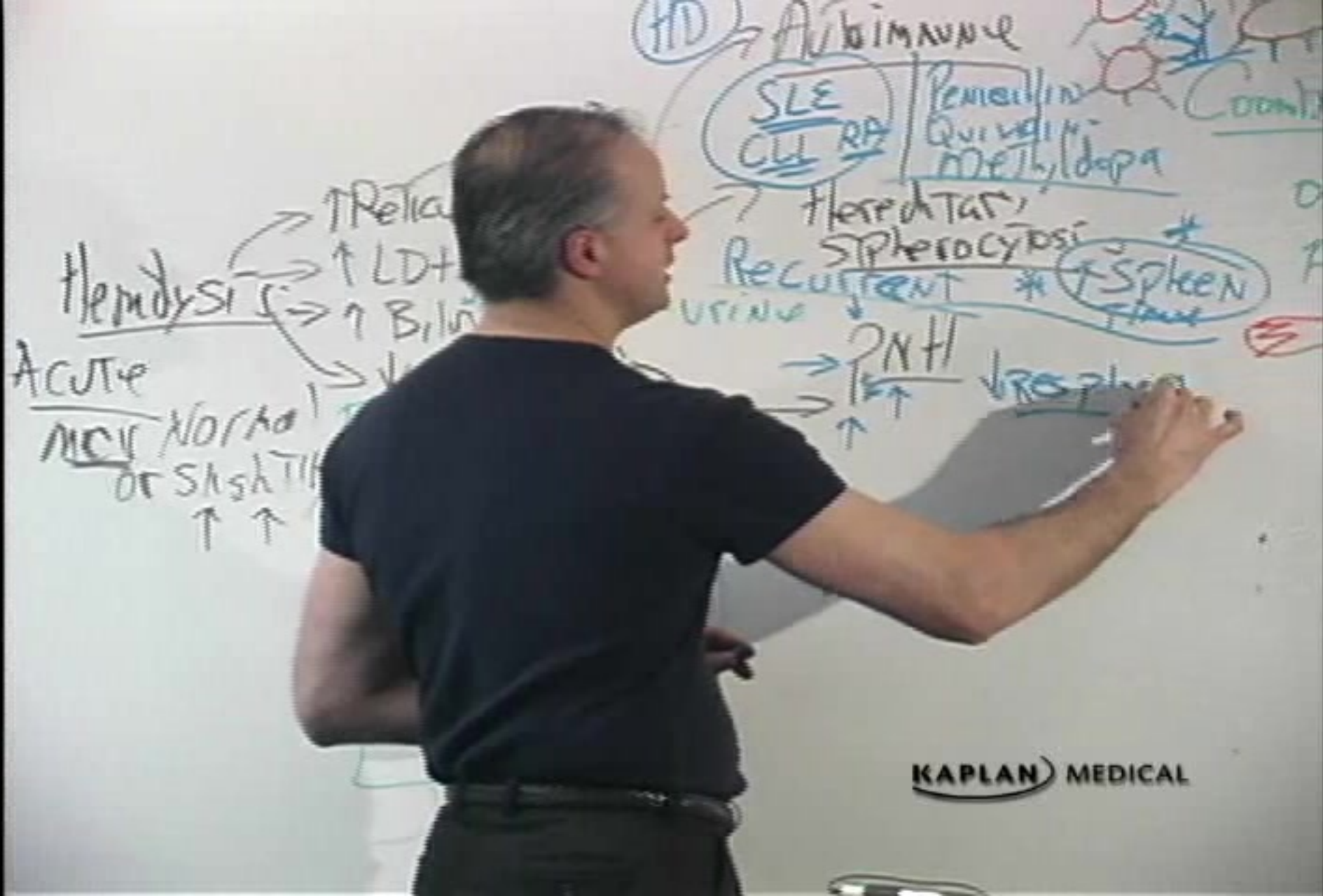
↑

G6PD

A man stands in front of a whiteboard filled with handwritten medical notes and diagrams. The notes include:

- Top Left:** hemolysis → acute MCV ↓
- Top Center:** hemolysis → direct bin → urine
- Top Right:**
 - HD → Autoimmune
 - SLE RA CLL → Hereditary
 - Penicillin Quinidine Methyldopa
 - Recurrent Spherocytosis → PNH
 - Spleen Trans
- Bottom Right:** G6PD

The whiteboard also features a small diagram of a cell with a nucleus and some arrows indicating processes.



HD → Autoimmune

SLE

Penicillin

Quinidine

Methyldopa

AT

CYTOSOL

* Spleen

↑

↓ RES P₁ → ↑ PCO₂ → ↓ pH

↑

↑

↑

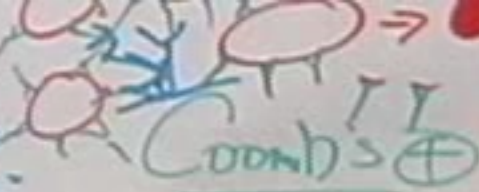
↑

↑

↑

↑

↑



STEROID
SPLENECTOMY 4/8

OSMOTIC

FRAGILITY

SPLENECTOMY

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

SPLENECTOMY

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑

↑ HD

HCT

↑

↑

↑

↑

↑

↑

↑

(HD) → Autoimmune

SLE

Penicillin

Quinidine

Methyldopa

ATAR

apocytosis

ENT

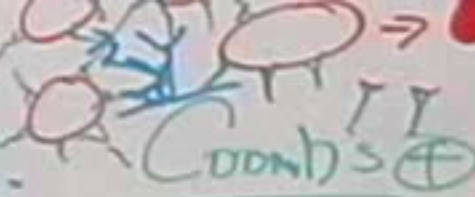
PNH

↑

↓ RES P₁

~ ↑ PCO₂

→ ↓ pH



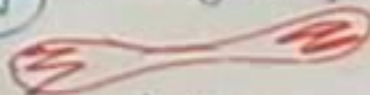
Steroid

Splenectomy / 480

OSMOTIC

Fragility

Splenectomy



(HD) → Autoimmune

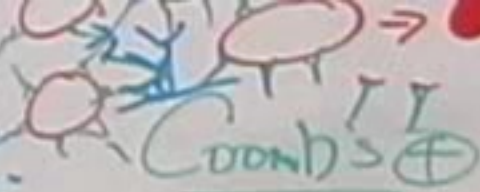
SLE

CLL

Penicillin

Quinidine

Methyldopa



Steroid

Splenectomy

4/8

OSMOTIC

Fragility

Splenectomy

cytosis

* * *

Spleen

↓ Res

↑ pH

$PCO_2 \rightarrow \downarrow pH$



ulocyte

Indirect

uric

Haptoglobin

↓ Res

↑ pH

Ag →

Autoimmune
SLE
RA
Penicillin
Sick
Steroid
Splenectomy
4/8 07
NI ST

cyte
Indirect
UDIN
pToglobulin
Vascular
Dark
→ Renal
Failure
ATN

Recurrent
URINE
Spleen
Fragility
Splenectomy
OSMOTIC
Fragility
Splenectomy

res p1 → ↑ pCO₂ → ↓ pH
Emphysema





SLE
RA
CLL

Penicillin
Quinidine
Methyldopa

Steroids
Splenectomy / 48 07
ST /

Hereditary

Spherocytosis

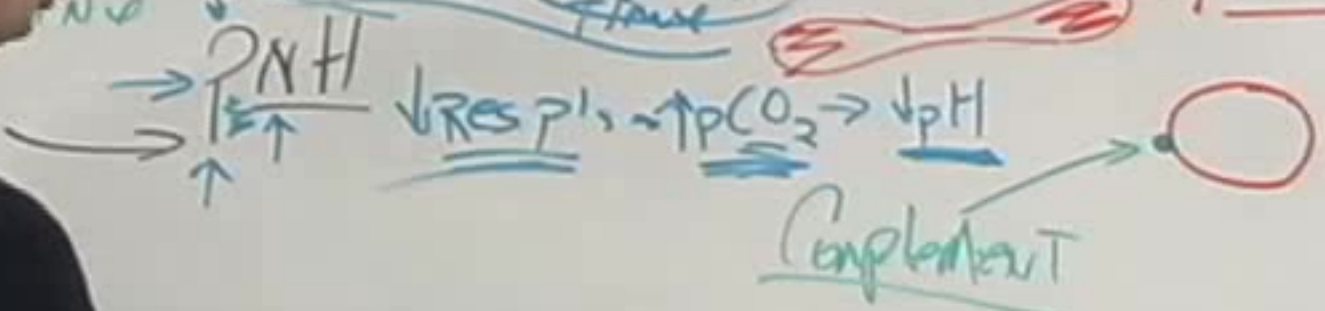
Recurrent

* Splenectomy

Osmotic

Fragility

Splenectomy





HD → Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa

Hereditary

Spherical Recurrent

Spherocytosis *
URICENT * Splenomegaly

USING

$\rightarrow 2N+1$

↓ res P_1 , $\uparrow pCO_2 \rightarrow \downarrow pH$

Complaint

↳ G6PD

HD → Autoimmune
 SLE RA Penicillin
 Quindin
 Methyl
 Hereditary
 SPHEROCYTOSIS
 CURRENT *
 → ?NHL
 ↑ Reticulocyte
 ↑ LDH
 Indirect
 ↑ Bilirubin
 Hemolysis
 Acute
 MCV Normal
 or Shift
 ↑ ↑

→ G6PD

HPD → Autoimmune
SLE
CLL
Penicillin
Hydrocortisone
Sick
Steroid
Splenectomy
4/8 07
ST

cytes
indirect
bilirubin
pToglobin
vascular
Dark
→ Renal
Failure
ATN

Receptor
PSI
Hydrocortisone

Spleen
Flare

OSMOTIC

Fragility

Splenectomy

respiratory → \uparrow PCO_2 → \downarrow pH

Complement







(HIV) → Autoimmune

SLE

RA

Penicillin

Quinidine

Methyldopa

Hereditary

Spherocytosis

TENT

Spleen

PNH

Respiratory → pCO_2 → pH

Complement → DAF

Osmotic

Fragility

Splenectomy

Steroid

Splenectomy

Reticulocyte

LDH

Bilirubin

↓ Haptoglobin

NTG

UTM

→



Hemolysis → ↑ Ret
 → ↑ LDH
 → ↑ Bilirubin
 → ↓ haptoglobin
 Acute
MCV Normal
 or slightly
 ↑

HD → Autoimmune
 SLE
 CLL RA
 Penicillin
 Quinidine
 Methyl Dopa
 Hereditary
 Spherocytosis
 Recurrent
 ↓
 Urine
 → Reticulocyte count
 → AML
 → G6PD
 → Splenic
 → ↑ PCO₂

Sickle Cell

Steroid
Splenectomy / 48 07 ED Pain

st / Back / Thigh

Exclusion
Transfusion

Splenectomy

Sugar-water
H/A

KAPLAN MEDICAL

Handwritten notes on a whiteboard:

- HD → Autoimmune
- SLE, CLL, RA
- Penicillin, Quindin, Methyldop
- Hereditary, Spherocytosis
- Recurrent * (S)
- PNH
- AML
- AA
- G6PD
- Hemolysis →
- Acute
- MCV
- Indirect → Urine

KAPLAN MEDICAL





KAPLAN MEDICAL

(HD) → Autoimmune
SLE
CLL RA
Penicillin
Quinidine
Methyldopa

Hereditary
Spherocytosis
Recurrent
Spleen
Trans

→ PNH
→ AML
→ AA
Thrombosis
res p's → pCO₂

G6PD

KAPLAN MEDICAL



KAPLAN MEDICAL

HD → Autoimmune

SLE
RA
CLL

Penicillin
Quinidine
Methyldopa

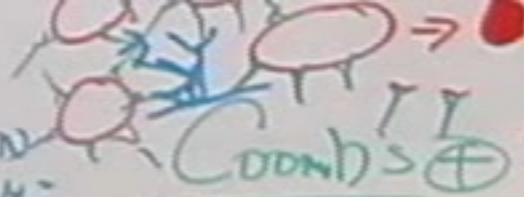
Hereditary
Spherocytosis
Recurrent

urine

→ ? NH

AM

A



Steroid

Splenectomy

Sickle

48 07 ED

ST / Back

OSMOTIC

Fragility

Splenectomy

CO₂ → ↓ pH

Complement



DAF

Dx
CD55
CD59

Rx ST

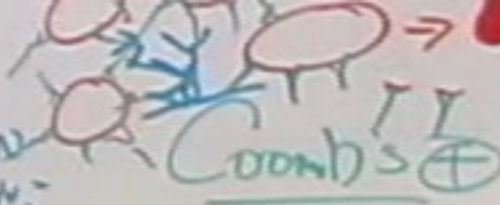
Level

KAPLAN MEDICAL

HD → Autoimmune

SLE
RA
CLL

Penicillin
Quinidine
Methyldopa



Steroid Sick
Splenectomy 4807
ST

Hereditary
Spherocytosis
Recurrent
URINE

OSMOTIC

Fragility

Splenectomy



$\uparrow pCO_2 \rightarrow \downarrow pH$

Complement

Dx
CD55
CD59



Level

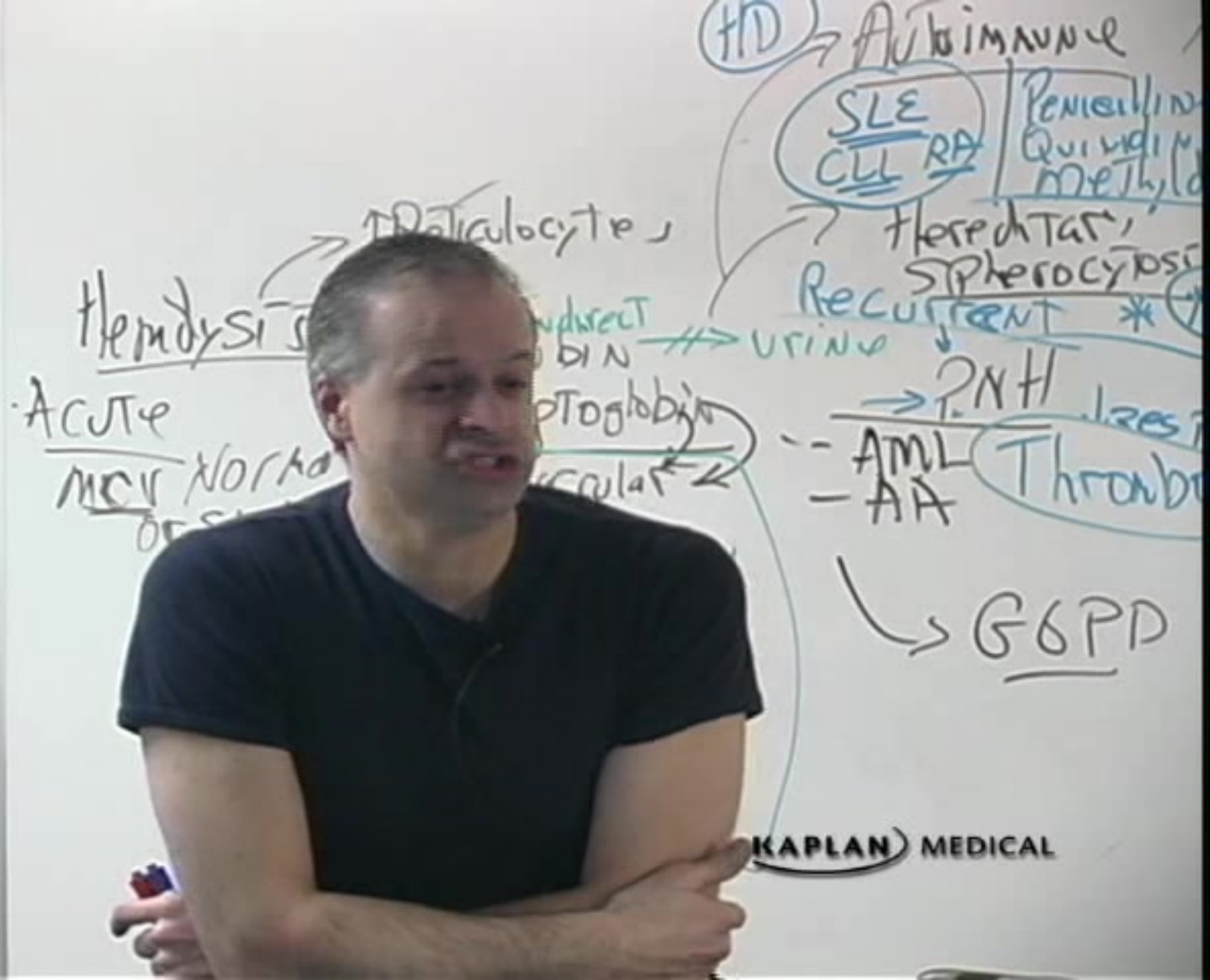
Hereditary

KAPLAN MEDICAL

Thrombosis

ACUTE
MCA
or

(H) Autoimmune
SLE
RA
CLL
Penicillin
Quinine
Methyldopa
Haptoglobin
Spherocytosis
Recurrent
2NH
AML
AA
Thrombosis



Handwritten notes on a whiteboard, likely related to hematology and immunology. The notes are organized into several sections:

- Top Left:** Hemolysis (with an arrow pointing to "IR Reticulocytes"), Acute, MCV, Normal, or Slight.
- Top Right:** Autoimmune (circled), SLE, RA, CLL (circled), Penicillin, Quinidine, Methyl.
- Middle Right:** Hereditary, Spherocytosis, Recurrent (with an asterisk), PNH (with an arrow pointing to "Direct Coombs Test").
- Bottom Right:** AML, AA, Thrombocytopenia (circled), G6PD.
- Bottom Center:** KAPLAN MEDICAL.

The man in the foreground is gesturing with his hands, indicating he is explaining the content of the whiteboard.



HD → Autoimmune

SLE	RA	Penicillin
CLL		Quinidine
		Methyldopa

Hereditary
Spherocytosis
Recurrent *
↓
PNH
↓
AML
- AA
Thrombosis
↓
G6PD

(HD) → Autoimmune

SLE

Penicillin

Quinidine

Methyldopa

Comb's ⊕

Steroid
Splenectomy

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

INTERVUS

UTIMOD

→ Hg

Cytosis

* Splen

Thrombosis

Respiratory → ↑ PCO₂ → ↓ pH

OSMOTIC

Fragility

Spleen

Complement

DAF

Leukel

KAPLAN MEDICAL

Handwritten notes on a whiteboard:

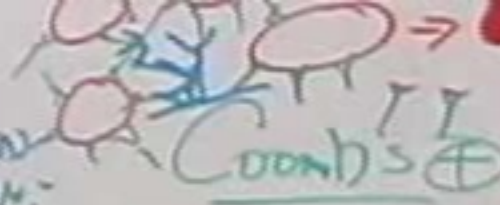
- HD → Autoimmune
- SLE, CLL, RA
- Penicillin, Quinidine, Methyl dopa
- Hereditary, Spherocytosis
- Recurrent
- USING
- PNH
- AML, AA
- Thrombosis
- G6PD
- Hemolysis
- Acute
- MCV
- or

KAPLAN MEDICAL

(HD) → Autoimmune

SLE
CLL RA

Penicillin
Quinine
Methyldopa



Steroid
Splenectomy / 48

Leucocyte

Indirect
Inulin

Haptoglobin

AVASCUL

ve Dac

Hg

Recu

Spleen

OSMOTIC

Fragility

Splenectomy

$P^1 \rightarrow PCO_2 \rightarrow \downarrow pH$

embosism

Complement DAF

Dx
CD5
CD59

level

HD → Autoimmune

SLE
CLL RA

Penicillin
Quindin-
Methyldopa

Steroid
splanato

Hereditas

Re: Spherocytosis

RELUCTANT

Spleen
~~True~~

DSNOTI (

Fragility: Splen

$$\rightarrow 2x + 1$$

Resp P1 \rightarrow \uparrow $pCO_2 \rightarrow \downarrow$ pH

- AML
- AA

Thrombosis

Complement DAF

↳ GDP

Henry ave

(HD) → Autoimmune
 SLE
 CLL RA
 Penicillin
 Quindim
 Methylopa
 Hereditary
 Phagocytosis
 * Splenic
 Thrombosis

Hemolysis → ↑ Reticulocytes
 → ↑ LDH
 → ↑ Bilirubin
 → ↓ Haptoglobin

Acute
 Microangiopathic
 or Shunt
 ↑ ↑

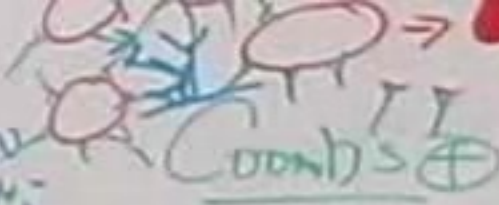
INTERSTITIAL
 UTI
 →

→ G6PD

HD → Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy 4/8
ni

culocyte

Indirect
Hb

Haptoglobin

vascular

no Dark

Hg → R

A

Re

PSI
* Splen
Taux

OSMOTIC

Fragility

Splenectomy

$2.5 \text{ pH} \rightarrow \uparrow \text{pCO}_2 \rightarrow \downarrow \text{pH}$

Thrombosis

Complement DAF
CD5
CD59

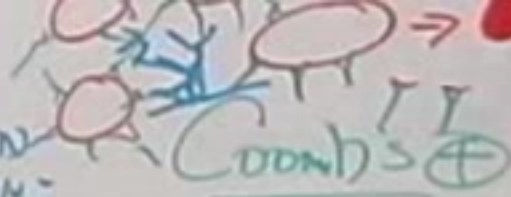
SPD

Heinz
level

HD → Autoimmune

SLE
RA

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ Haptoglobin

INTERRUPTED

UTERINE

→ H

Hereditary

Spherocytosis

Urgent

→ ANH

AML

AA

Thrombosis

STP

Respiratory → ↑ PCO₂ → ↓ pH

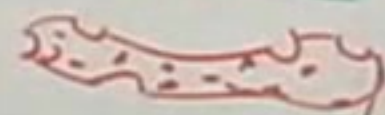
OSMOTIC

Fragility

Splenic

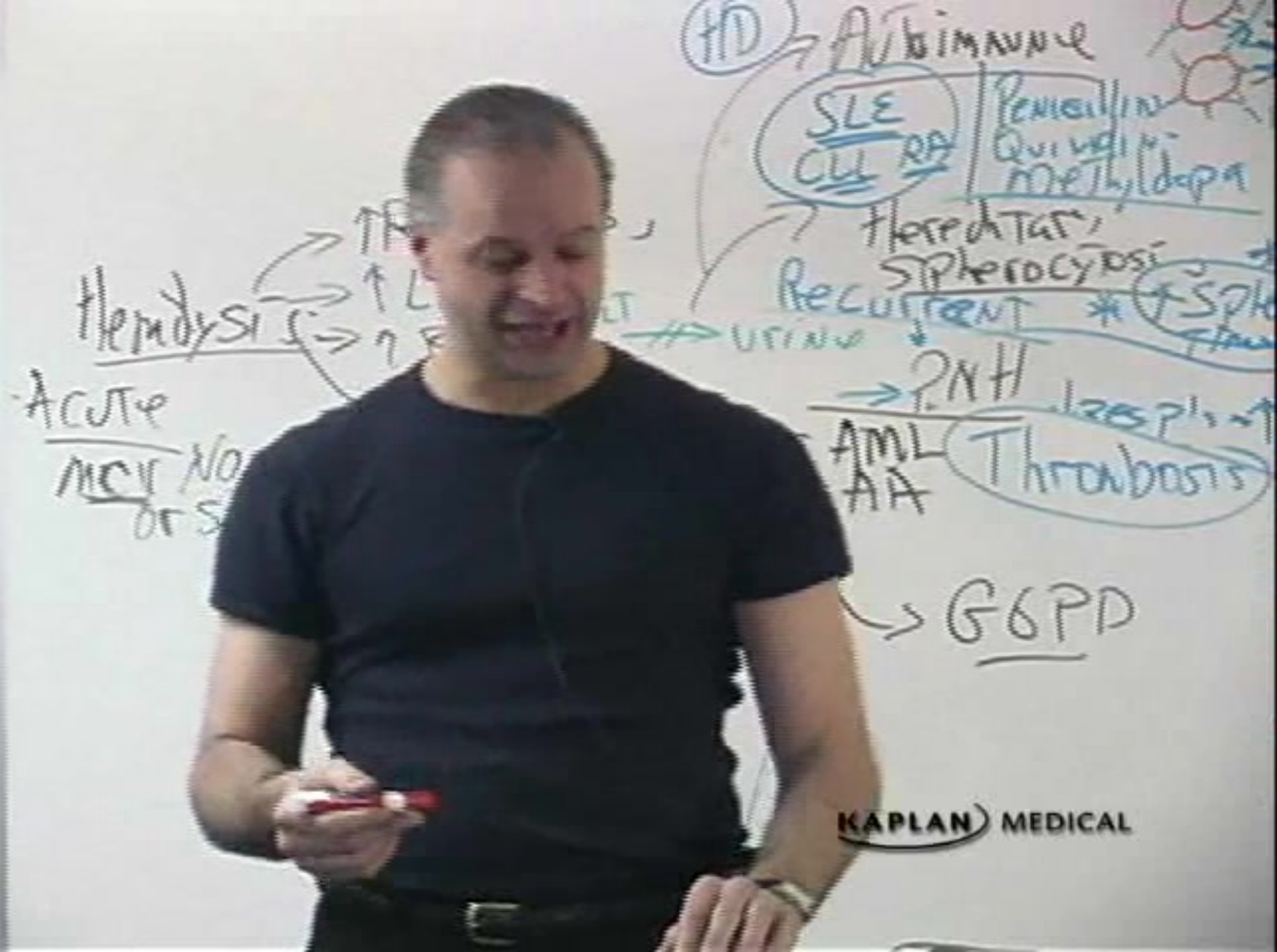


Complement → DAF



level

Heinz





ID → Autoimmune
 SLE
 CLL RA
 Penicillin
 Quinine
 PA
 Hered
 Spher
 Recurrent
 USINW
 Osmotic
 Fragility
 Spleen
 Splenectomy
 Steroid
 Splenectomy / 480 → ED Par
 ST / Back /
 (Exc
 Dx
 CD55
 CD59
 DAF
 Complement
 pH
 PCO₂ → pH
 R_x Stero
 Sugar
 H/A
 Heinz
 Sickle Cell

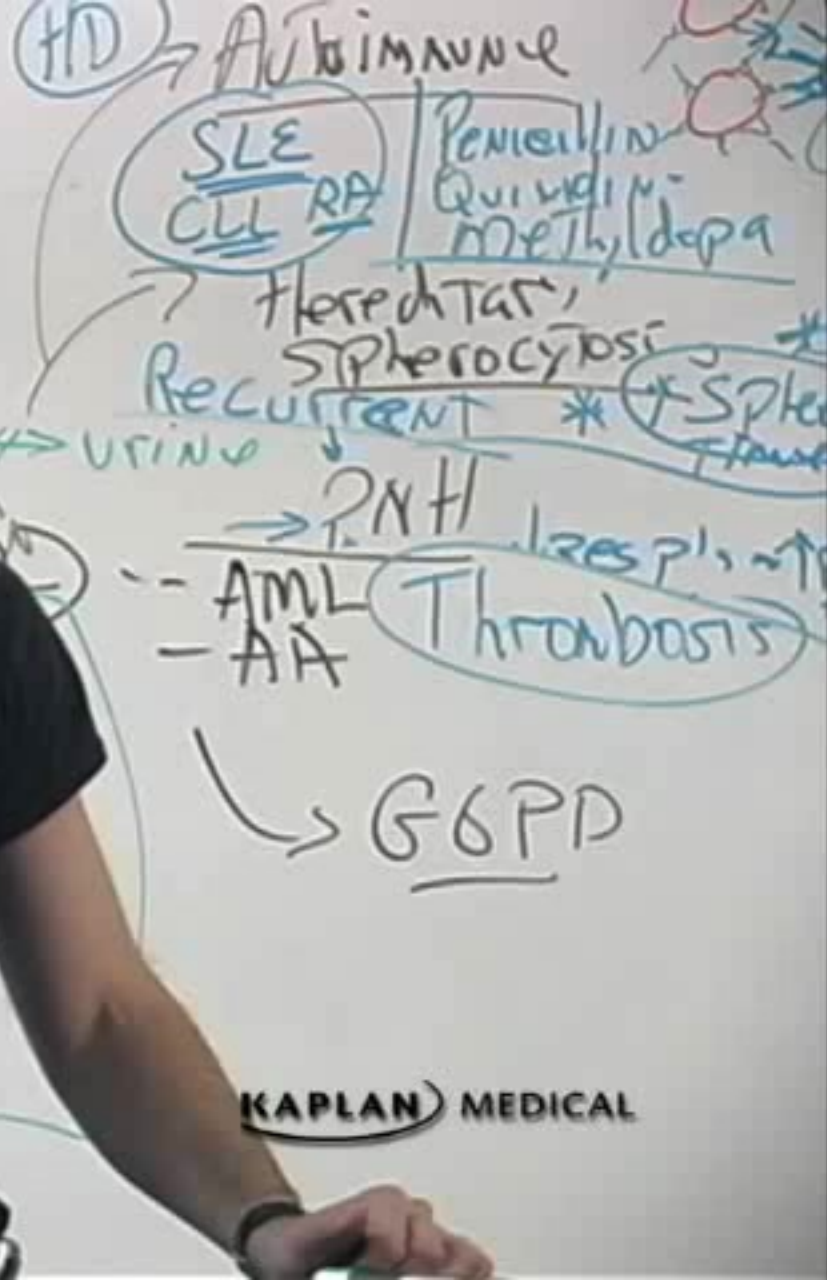


Hemolysis

Acute
MCV

leucocytes

Indirect
urine



KAPLAN MEDICAL

④

1

Penicillin

Q. 1. 2. 3. 4. 5.

175

Florschtas,

Spherocytosis

CURRENT

Spleen

 $2N+1$

Thrombosis

G6PD

Steroid
spironactone

DSNOT1 (

Fragility

Solomon

↓pH

Coaching

~~Daf~~

ako

Hienz

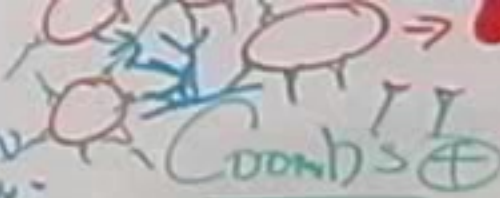
Tela	
------	--

KAPLAN MEDICAL

(HD) → Autoimmune

SLE
RA
CLL

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

↑ Reticulocyte

↑ LDH

↑ Bilirubin

↓ #

Hereditary

Spherocytosis

↓ RBC

* Splenectomy

Osmotic

Fragility

Spleno

→ RBC

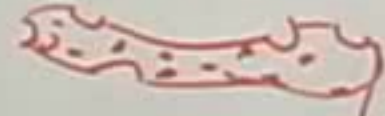
↓ Res P₁ → ↑ PCO₂ → ↓ pH

AML
- AA

Thrombosis

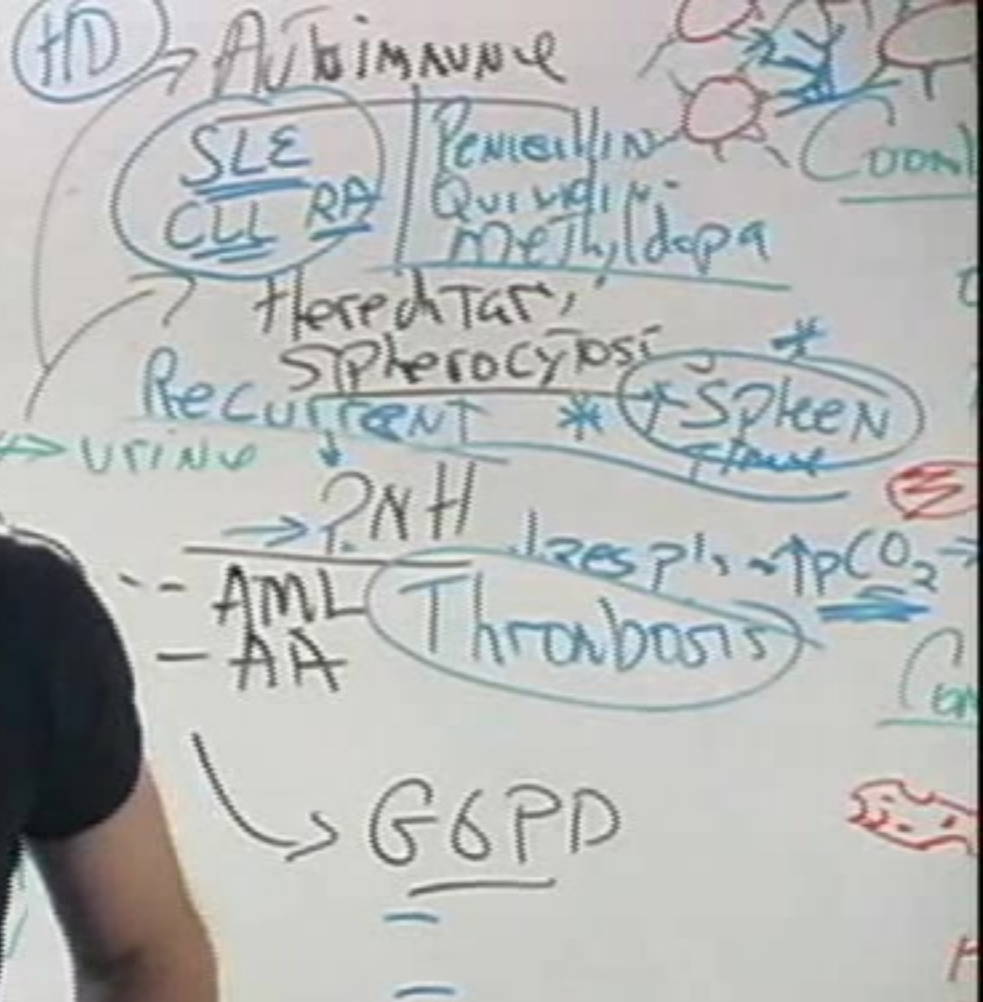
Complement DAF

→ G6PD



level

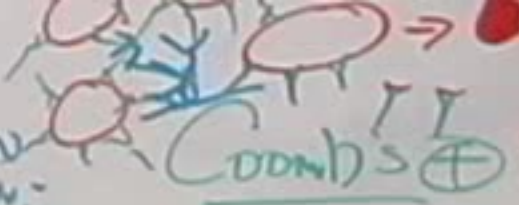
Heinz
Warts



(H/D) → Autoimmune

SLE

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

→ ↑ Reticulocyte
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ Haptoglobin

Acute
Hemolytic
↑

INTERSTITIAL
UTI

Tar

Leukocytosis

* Splenic
Hemorrhage

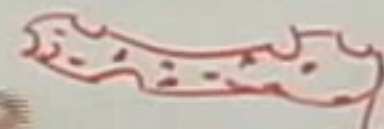
Osmotic

Fragility

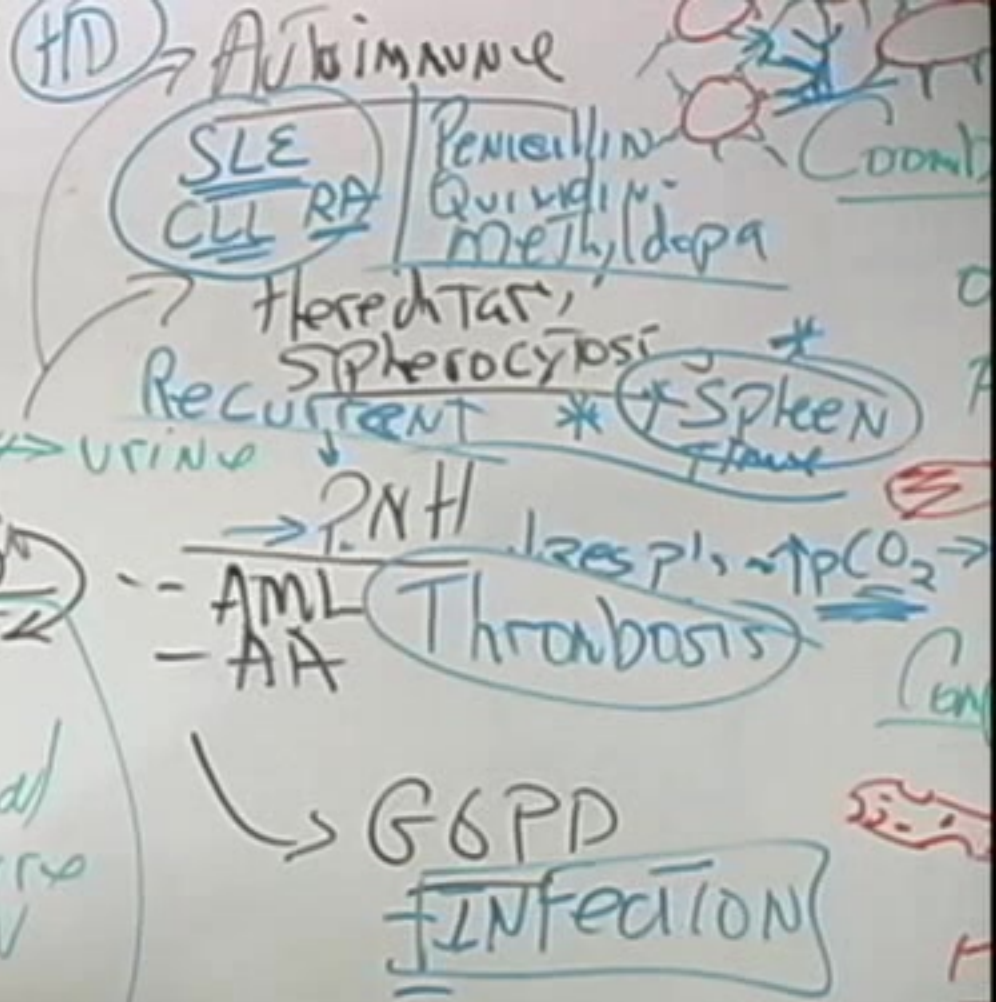
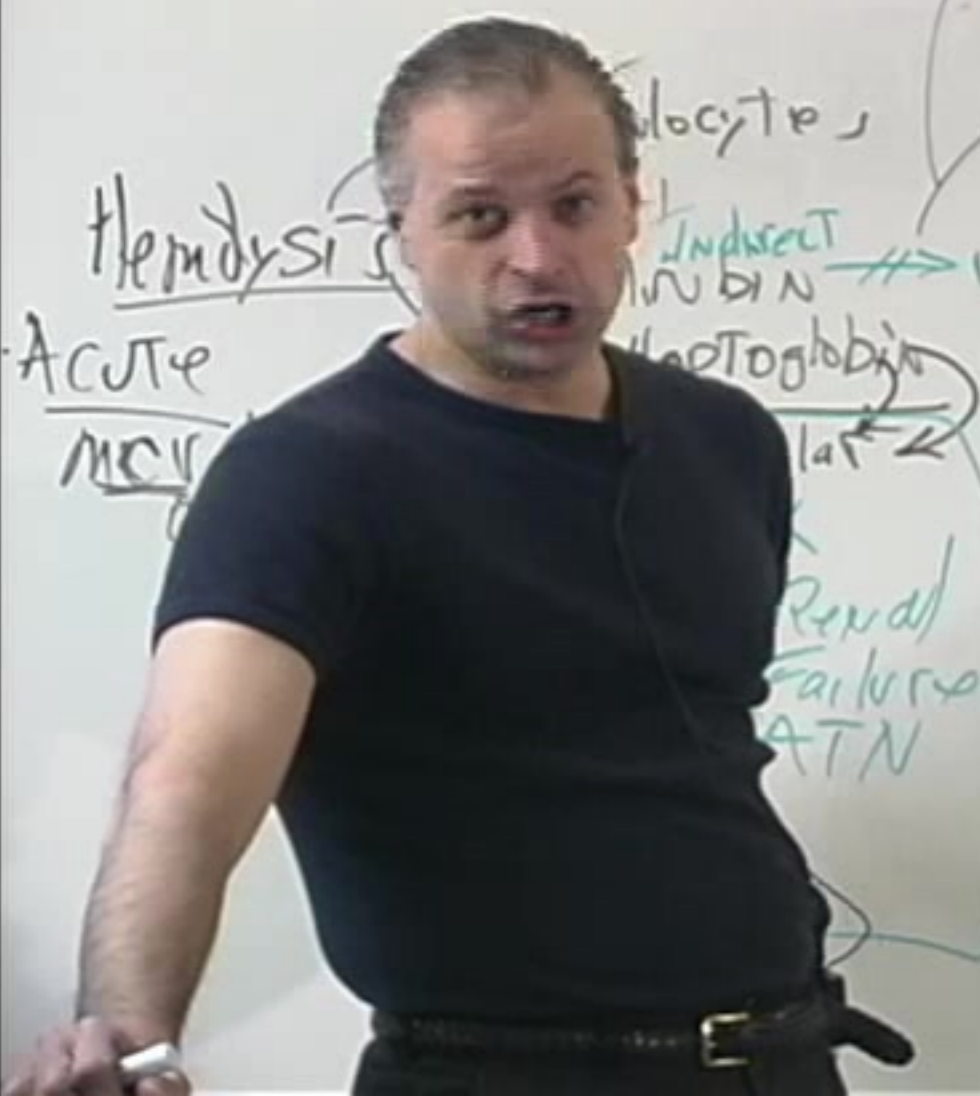
Respiratory → ↑ PCO₂ → ↓ pH

Thrombosis

Complement



Heinz
Warts



(HD) → Autoimmune

SLE
CLL RA

RA Penicillin
Quinidine
Methyldopa

Hereditas

Re: Spherocytosis

Spherical Recurrent

Spleen

using

 $2N+1$

AML
AA

AML
AA

Thrombosis

GDPD

INFECTION

KAPLAN MEDICAL

Autoimmune

SLE	Penicillin
CLL	Quinidine
RA	Methyldopa

Hereditary

Spherocytosis

Recurrent

Spleen

Thrombosis

G6PD

INFECTION

Hemolysis

↑ Reticulocytes

↑ LDH

↑ Bilirubin

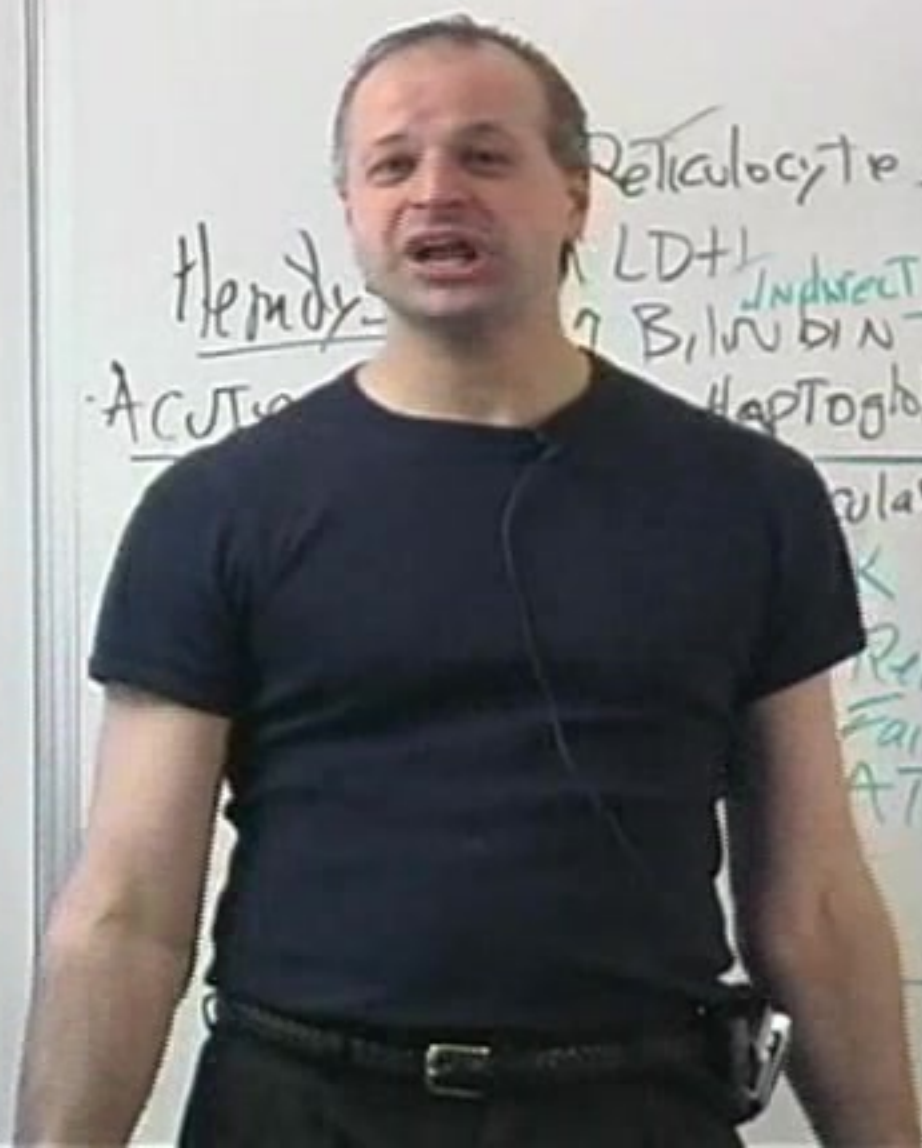
Acute

MCV Normal

or slightly

↑ ↑

HD → Autoimmune
 SLE
 CLL RA
 Penicillin
 Quinidine
 Methyl dopa
 Hereditary
 Spherocytosis
 Recurrent
 Urinary
 ? NH
 AML
 AA
 Thrombocytopenia
 G6PD
 Steroid
 Splenectomy
 480 → ED
 ST / Back
 Ex
 Dx
 DAF
 CD55
 CD59
 Rx Steroid
 Sugar
 H/A
 Rx
 Wait



Handwritten notes on the whiteboard:

- Top left: Hemoly
- Top center: Reticulocyte, LDH, Bilirubin (with "Indirect" written above it), Haptoglobin
- Top right: (HD) → Autoimmune
- Top right (circled): SLE, CLL, RA
- Top right: Penicillin, Quinidine, Methyl
- Top right: Hereditary, Spherocytosis
- Top right: Recurrent
- Top right: → ?NH
- Top right: AML, AA
- Top right: Thrombo
- Top right: → G6PD
- Top right: Infect
- Bottom right: KAPLAN MEDICAL



Hem

Acute

→ Reticulocyte

→ ↑ LDH

→ ↑ Bilirubin

Indirect

→ Urine

Haptoglobin

Vasculature

Dark

→ Renal

Failure

ATN

HD → Autoimmune

SLE
RA
CLL

Penicillin
Quinine
Meth

Hereditary
Spherocytes
Recurrent

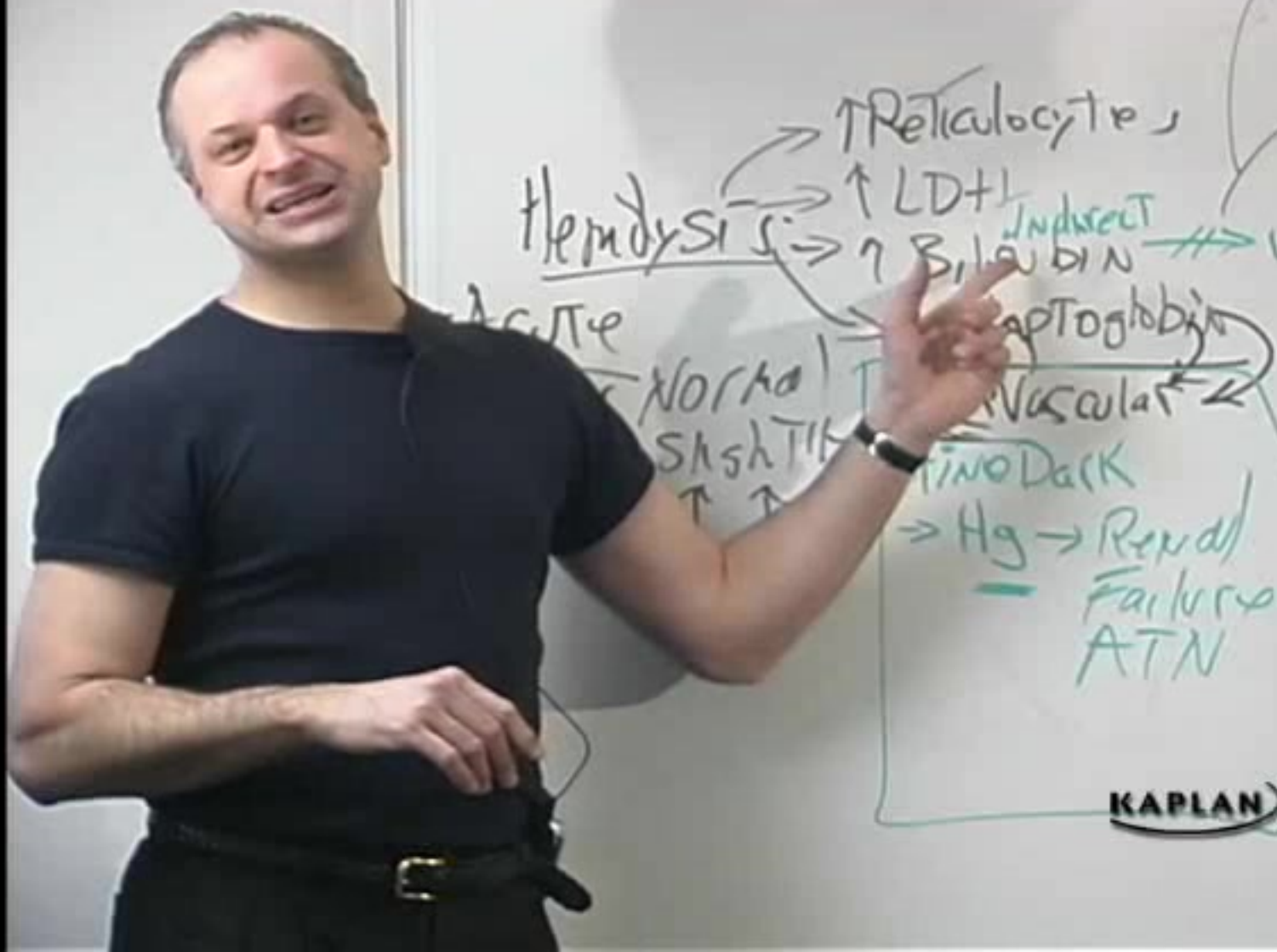
→ PNH

- AML
- AA

Throm

→ G6PD
INFE

KAPLAN MEDICAL

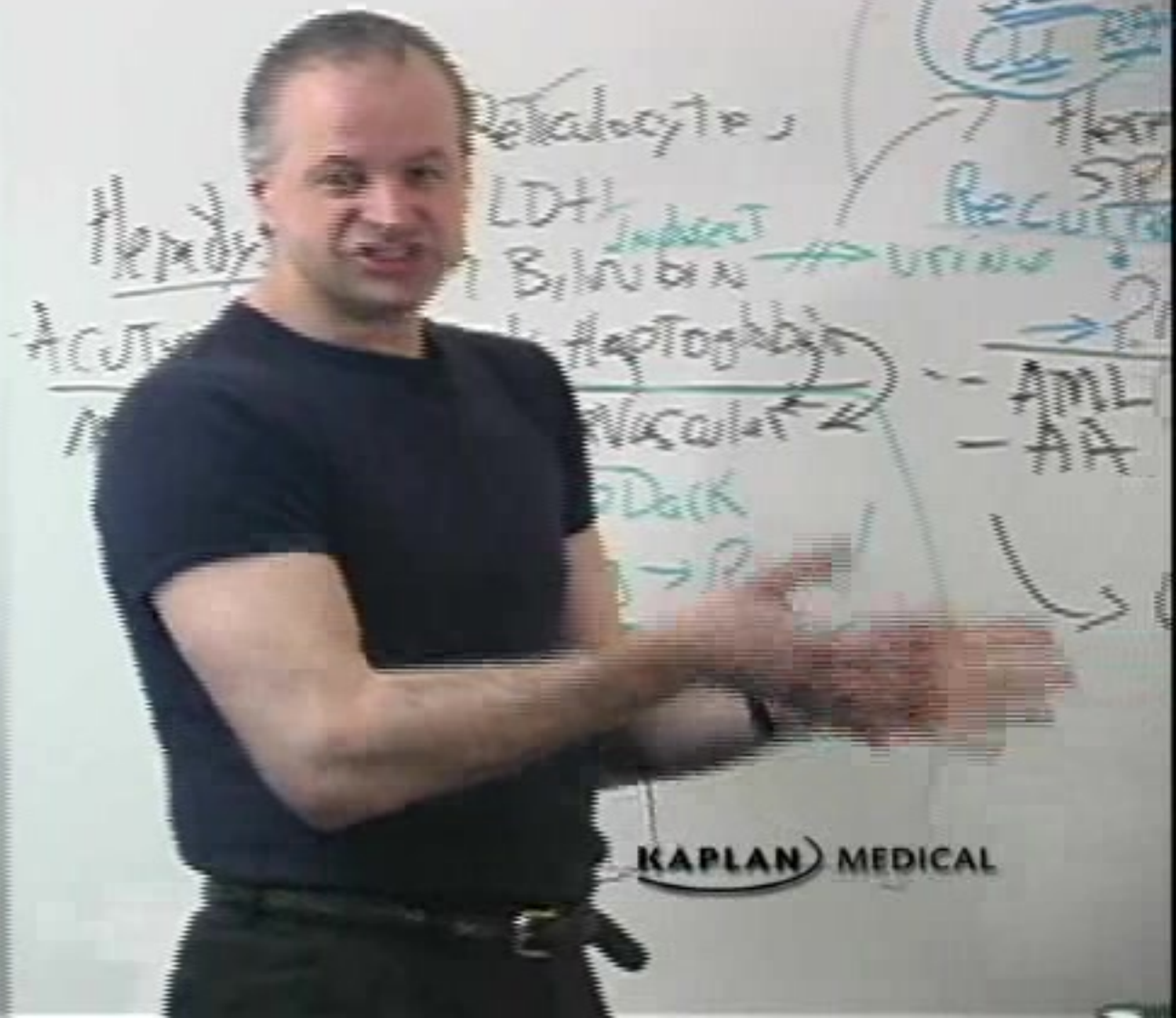


Hemolysis → ↑ Reticulocytes
→ ↑ LDH
→ ↑ Bilirubin → Indirect → Urine

Acute
Normal
Slight
↑
Vascular
Dark
Hg → Renal Failure
ATN

(HD) → Autoimmune
SLE
CLL
RA
Hereditary
Spherocytosis
Recurrent
PNH
AML
AA
G6PD

KAPLAN MEDICAL



KAPLAN MEDICAL

4D → Autoimmune

SLE
CLL RA

Penicillin
Quinolone
Methyldopa

Steroid
splenatom

Hereditas

Spherocytosis

eluent

USART1 (

Fragility

Spleen


res p^l → ↑ pCO₂ → ↓ pH

Thrombosis

Complaint - DAF

→ GDP

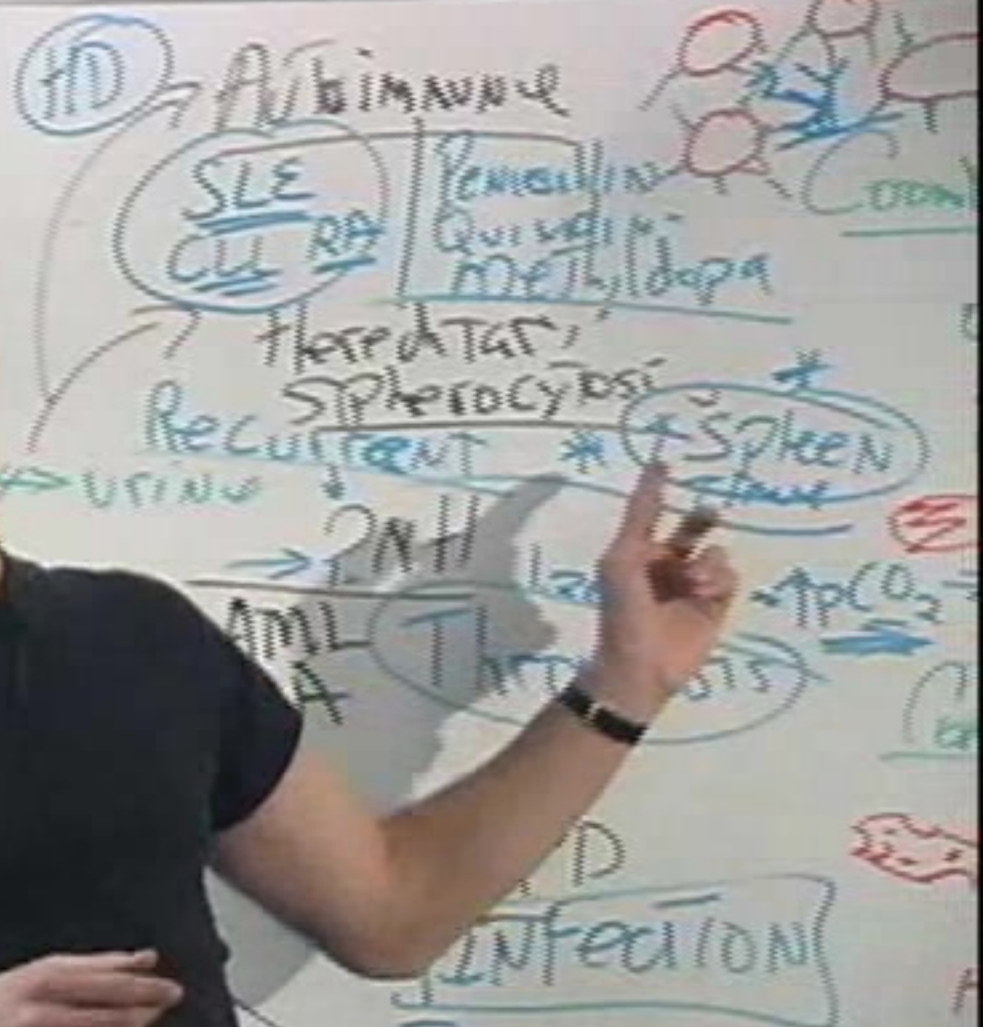
INFECTION



ave

Heinz Watt

Hemolysis
→ ↑ LDH
→ ↑ Bilirubin
→ ↓ haptoglobin
Acute
MCV Normal
of Spherocytes
↑ ↑



(HD)

Autoimmune

SLE
CLL RA

Penicillin
Quinidine
Methyldopa



Steroid

Splenectomy / 48 07

Sick

Hereditary

Spherocytosis

Recurrent

* Splenectomy

OSMOTIC

Fragility

Splenectomy

URINE

→ ? NH

respiratory → ↑ PCO₂ → ↓ pH

AML
AA

Thrombosis



Complement

DAF

CD55

CD59

Dx

G6PD

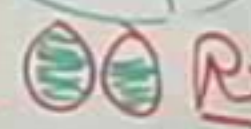
INFECTION



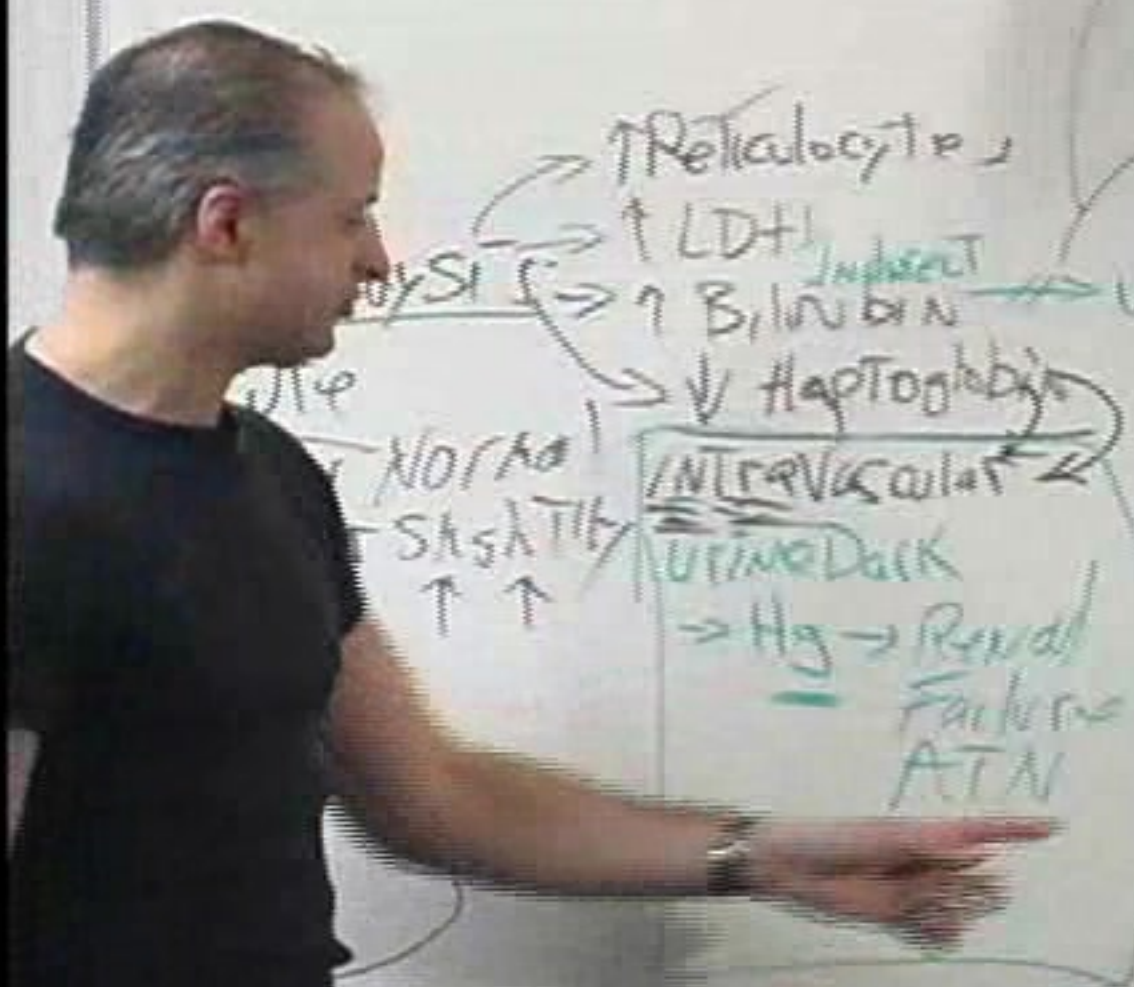
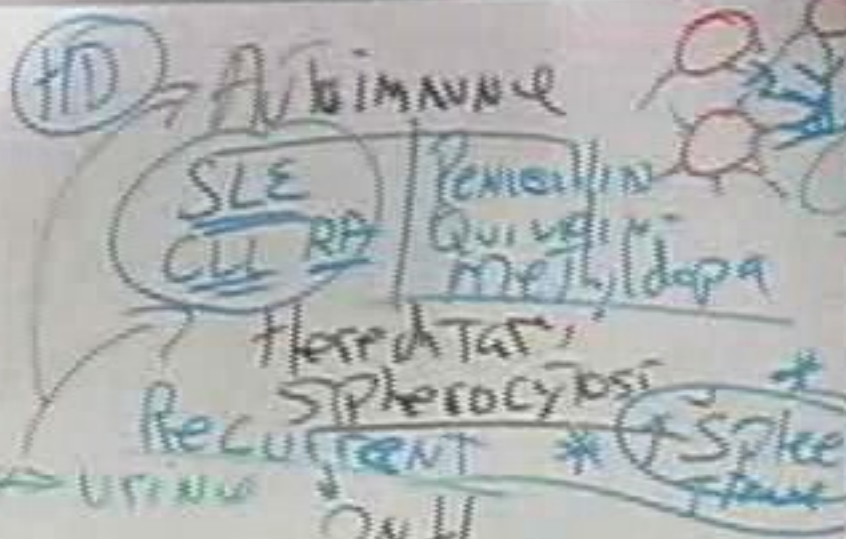
Leukel

Heinz

Warts



KAPLAN MEDICAL

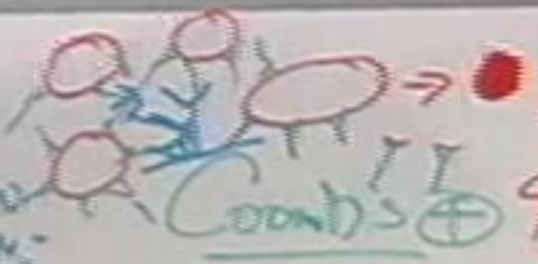


HD

Autoimmune

SLE
RA
CLL

Penicillin
Quinidine
Methyldopa



Steroid
Splenectomy

Sickle

48 07 E
1/10 1/10

Hereditary
Recurrent Spherocytosis
USING
2NH
Thrombosis

OSMOTIC

Fragility

Splenectomy



resp. \downarrow \uparrow \downarrow pH

Complement



Dx Rx

CD55
CD59

G6PD
INFECTION



Heinz

Wait

Rx: A



Hemolysis

CAT

CV

direct
IN

(HD) → Autoimmune
SLE
RA
Penicillin
Quinidine
Methyldopa
Hereditary
Spherocytosis
Recurrent
UTI

Respiratory
Arthritis
Chondrosarcoma

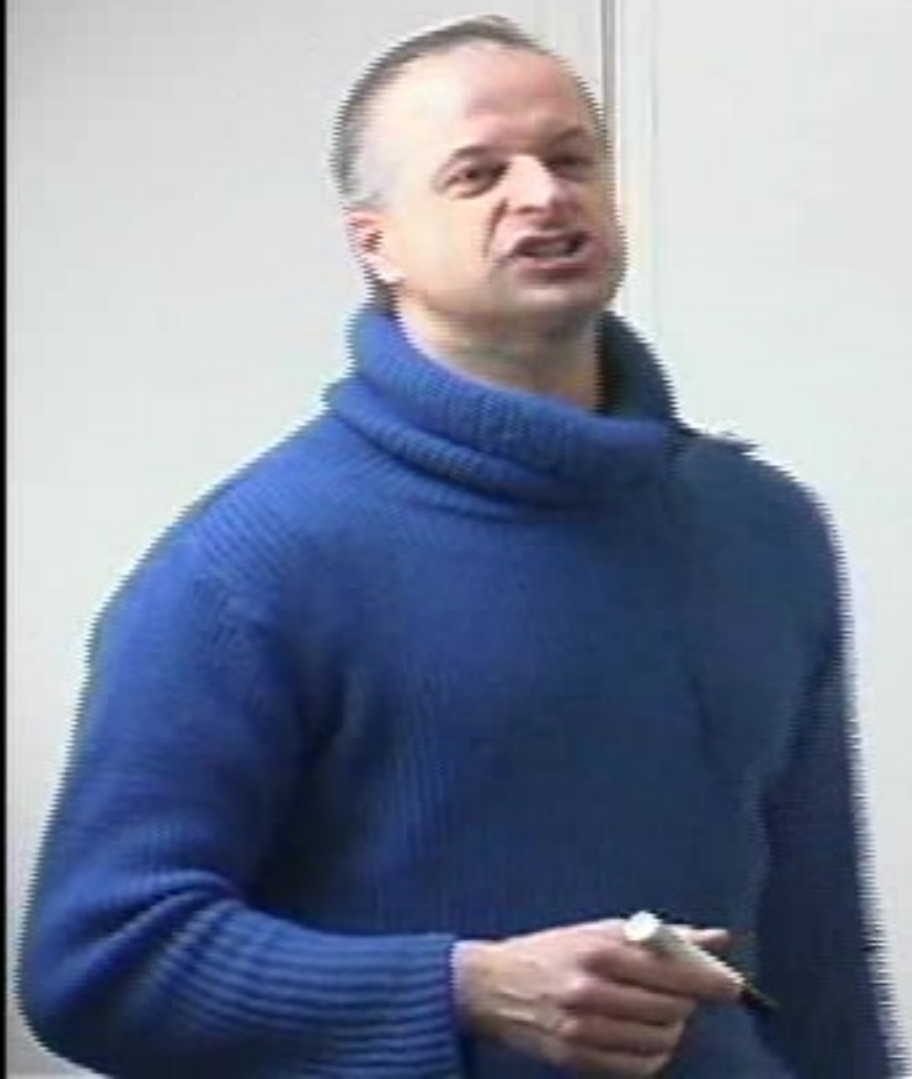
S6PD
Infection

KAPLAN MEDICAL



KAPLAN MEDICAL

~~De~~
- yea
*
9
+
- G
1bi
rest
'diviso
RMT



KAPLAN MEDICAL

C

24 fca
✓
O w
F →

KAPLAN MEDICAL

A man with short, dark hair, wearing a blue turtleneck sweater, is standing in front of a whiteboard. He is holding a small, white, cylindrical object in his right hand. The whiteboard is blank and has a small black box in the top left corner. The logo "KAPLAN MEDICAL" is visible in the bottom right corner of the image.

KAPLAN MEDICAL

Red

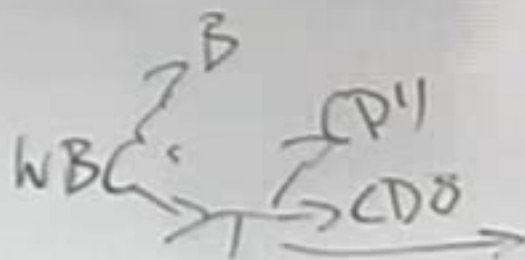
KAPLAN MEDICAL

Red

WBC \xrightarrow{B} $\xrightarrow{CD11}$

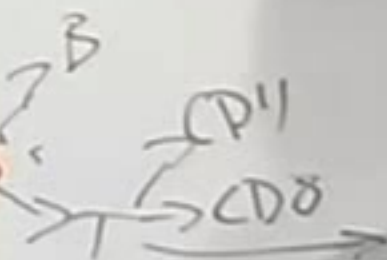
Platelet

Red

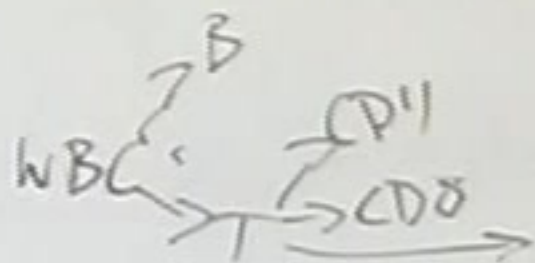


Platelet,

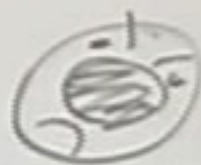
Red



Red



Platelet,



CLL

Efficient

0 WBC

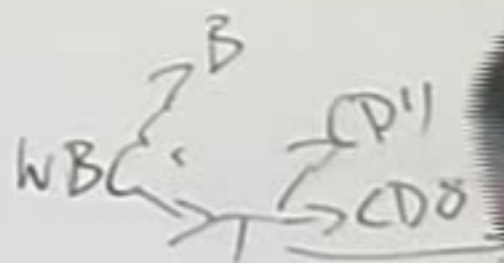
⇒ >90%

lymphs

0-
1-
2-
3-
4-
5-

KAPLAN MEDICAL

Red



Platelet,

CLL

Efficient

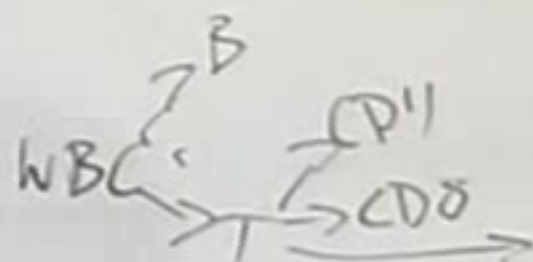
0 WBC

F → >90%

lymphs

- 0 - ↑ W
 - 1 - ⊕ M
 - 2 - SP
 - 3 - AN
 - 4 - ↓ P
- Co
Ste

Red



Platelet

CLL

Efficient

↓ WBC

→ >90%

lymphs

- 0 - ↑ WBC
 - 1 - ⊕ No
 - 2 - SPH
 - 3 - ANE
 - 4 - ↓ pl
- Cooper
Ster

KAPLAN MEDICAL

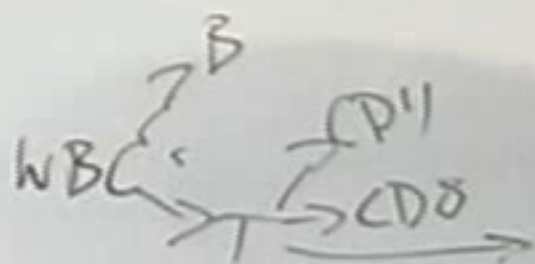
CLL

- 0 - ↑ WBC
- 1 - ⊕ Nodes
- 2 - spleen
- 3 - Anemia
- 4 - ↓ platelets

Coanb's
Steroids

KAPLAN MEDICAL

Red



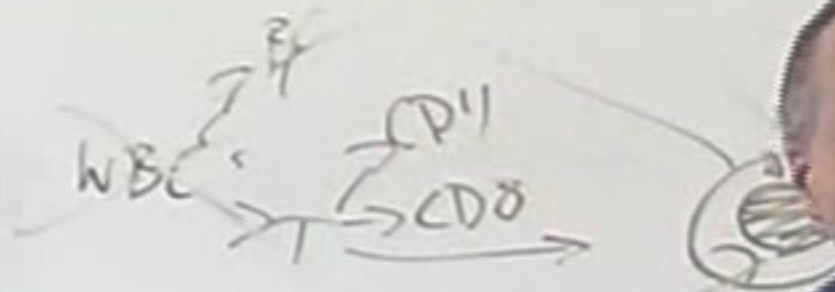
Platelet



CLL

- 0 - ↑ WBC
 - 1 - ⊕ AN
 - 2 - SP
 - 3 - AN
 - 4 - ↓ P
- 3C'
90%
Co
STe

Red



~~Platelet~~

CLL

Efficient

0 WBC

F → >90

lym

KAPLAN MEDICAL

~~Red~~

Aplastic

WBC \rightarrow CD11
 \rightarrow CD20

~~Platelet~~

CLL

effice

0 WBC

\Rightarrow >90%

lymphs

0 - ↑ WBC } 10-12
1 - ⊕ Nodes } years

2 - spleen } 5

3 - ANEMIA } 1-2

4 - ↓ platelets } years

Coanb's
Steroids

Allo < 5

AUTO SCT

Aplastic
Anemia



CLL

- 0 - ↑ WBC
 - 1 - ⊕ Nodes
 - 2 - spleen
 - 3 - anemia
 - 4 - ↓ platelets
- 10-12 years
5

Coanb's
Steroids

CLL
Ig

CLL

affair
D WBC
F → >90%
lymphs

0 - ↑ WBC }
1 - ⊕ Nodes } 10-12
2 - spleen } years
5

3 -
4 - } 1-2
years

Fluda

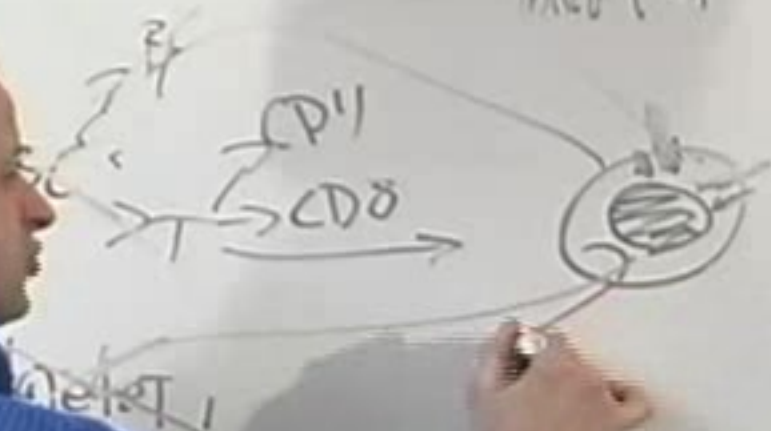
Chloro

<50

SCT

Red

Aplastic
anemia





~~Red~~

Aplastic
anemia

~~WBC~~

CD11

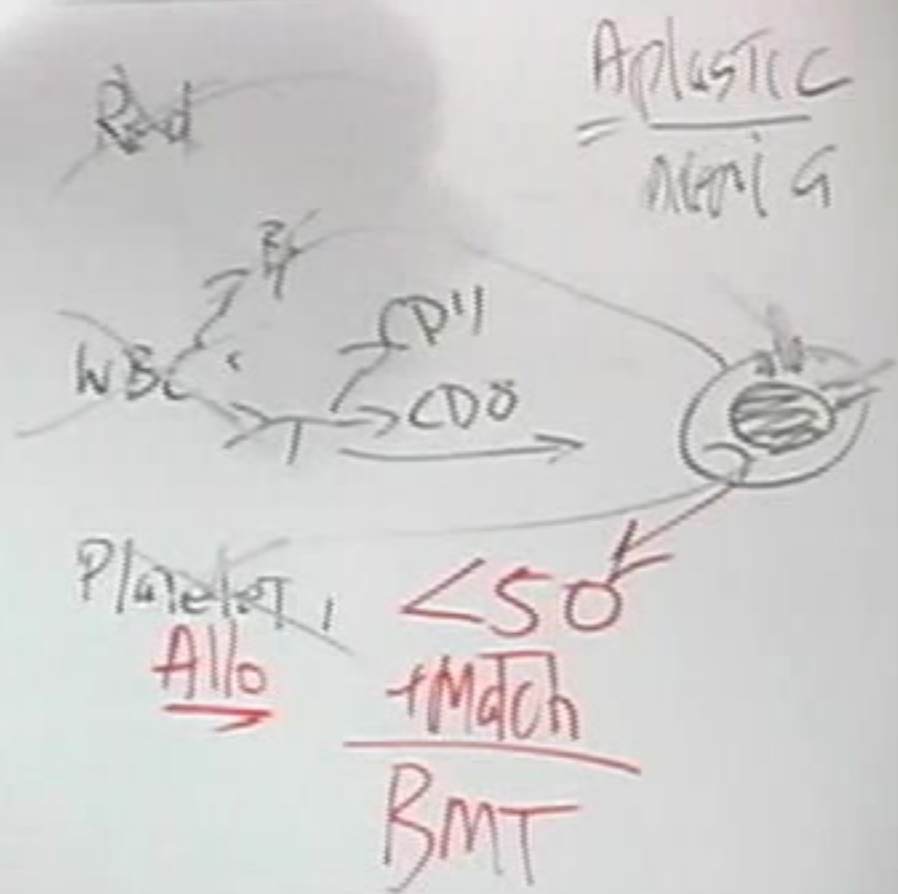
CD8

Platelet

Hch

BMT

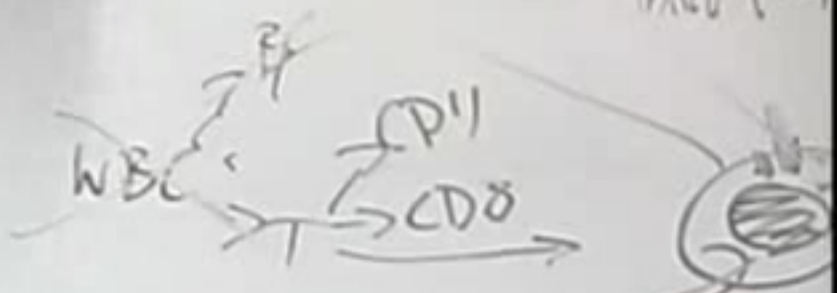
KAPLAN MEDICAL





Radi

Aplastic C
= aplasia



Platelet

<50

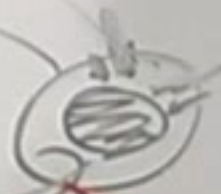
+Match

BMT

Aplastic
anemia

Red

WBC
D8



<50

>50

Th

Rad

Aplastic
anemia

34

CD11
CD8
T



AT 1

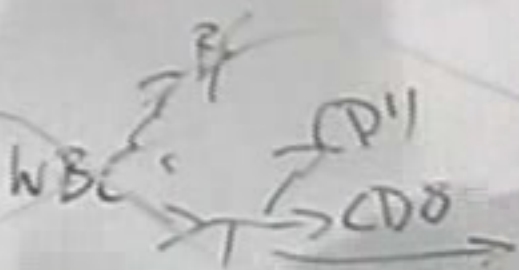
<50
+match

>50
no match

BMT

2nd

Aplastic
anemia



Platelet

<50

>500

no match

* Cyclosporin

Red

Aplastic
anemia

WBC



50

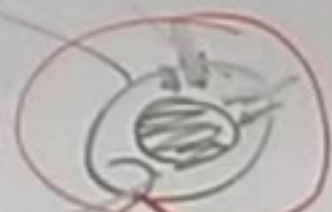
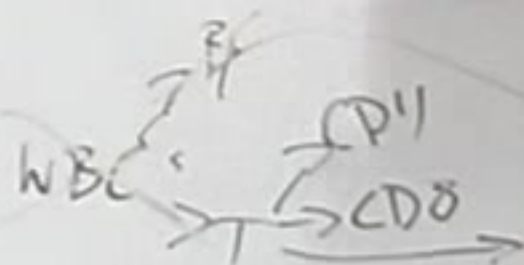
50

No match

* Cyclosporine
+ Anti Thymocyte

Red

Aplastic
anemia



Platelet
Allo

<50
+ Match

BMT

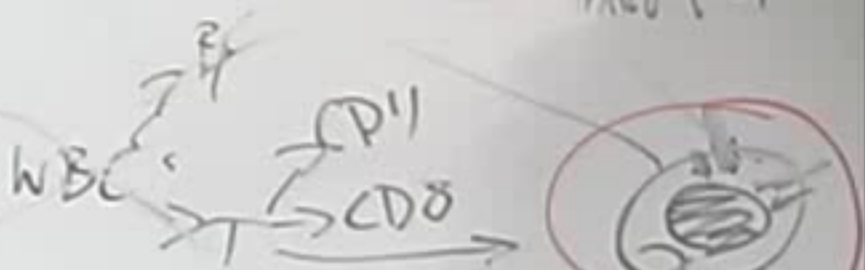
>50
No match

* Cyclosporin
+ Anti Thymo



Red

Aplastic
Anemia



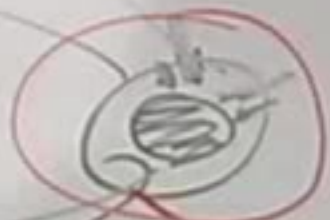
Platelet, < 50
Allo + Match
BMT

> 55
No m
* Cyc
+ Anti

Red

Aplastic
anemia

WBC



<50

+ Match

NT

>50

No match

* Cyclosporin
+ Anti Thymo

Red

$$= \frac{1112512}{125919}$$

C22

2 fics

0 WBC

 $\Rightarrow > 90^\circ$

67.5

$\angle D''$
 $\rightarrow \angle D\delta$

 $\angle 50^\circ$

4Mg

BM

Σ506

No match

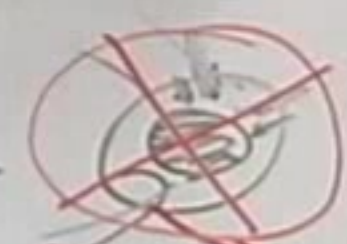
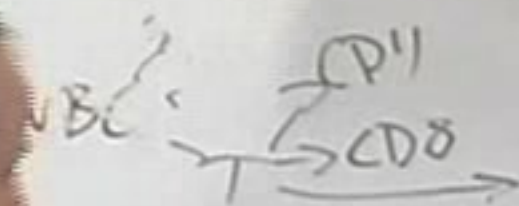
* Cyclosporine

* $\overline{A} \cup \overline{B} = \overline{A \cap B}$

Glutathione

Red

Aplastic C
mening



Platelet, <50
Allo + Match
BMT

>500
No match
* Cyclosporine
+ Anti Thymocyte
Globulin



KAPLAN MEDICAL

Aplastic
Anemia

WBC

 $\angle 50^\circ$

• f March

BMT

No

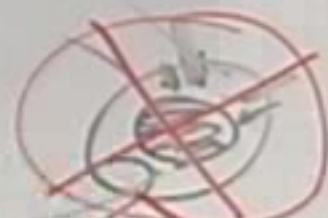
* Cyc

AW



Aplastic
anemia

WBC → CD11
→ CD8



Platelet
Allo

<50
+ Match

BMT

>50
No match

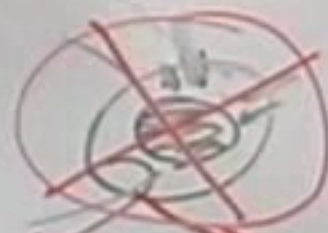
* Cyclosporine
+ Thymocyte
Globulin

KAPLAN MEDICAL

2nd

Aplastic
anemia

CD11
CD8
T



Allo
Allo

<50
+ Match

BMT

>50
No match

* Cyclosporine
+ Anti Thymocyte
Globulin



KAPLAN MEDICAL

Acute

Acute

KAPLAN MEDICAL

Adults
AML

Acute Ab
A

Adults
AML

Acute Children
ALL

Adults
AML

Polycythemia

Acute Children
ALL

Adults

AML

Pancytopenia

1°/Metastatic

Acute Children

ALL

Adults
AML

Acute Childhood
ALL

Polycythemia

1° Metabolic

Infection

ADULTS
AML

Acute Children
ALL

POCYPOTOPIC

1°/METASTATIC

INFECTION

HEP B, C, CMV

HIV

Adults

AML

Pancytopenia

1°/Metastatic

Infection

Hep B, C, CMV

HIV

Drugs

Alcohol

Radiation

Acute Childhood

ALL

Adults

AML

Acute Children

TALL

Paracytopenia

1°/Neutropenic

Infection

Hep B, C, CMV

HIV

Leukemia

lymphoma

infection

folate

KAPLAN MEDICAL

Adults

AML

Acute Children

TALL

Pancytopenia

1°/Metabolic

Infection

Hep B, C, CMV

HIV

Drugs

Alcohol

Radiation

BD/folate

SLE

KAPLAN MEDICAL

Adults

AML

Acute Childre

ALL

Precipitating

1°/Metabolic

Infection

Hep B, C, CMV

HIV

Drugs

Alcohol

Radiation

BD/folate

SLE

Splen

KAPLAN MEDICAL

Adults

AML

Acute Child

ALL

Cytopenia

Metabolic

Infection

EBV, CMV
IV

Tip

KAPLAN MEDICAL

Adults

AML

Acute Child

ALL

Pancytopenia

1°/Metastatic

Infection

Hep B, C, CMV

HIV

SS

(Alcohol)

Radiation

BR/folate

SLE

Splenomegaly

Aplastic

KAPLAN MEDICAL

Adults

AML

Pancytopenia

1°/Metastatic

Infection

Hep B, C, CMV

HIV

SS

(b)

open

plastic

Acute Children

ALL

Tired

Anemia

Low Platelets

Adults

AML

Pancytopenia

1°/Metabolic

Infection

Hep B, C, CMV

HIV

Drugs

Alcohol

Radiation

BR/Folate

SLE

Splenomegaly

Alcohol

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

KAPLAN MEDICAL



Adults

AML

Pancytopenia

1°/Metabolic

Infection

Hep B, C, CMV

HIV

Drugs

Alcohol

Radiation

BD/Folate

LE

op/iron

alkali

Acute Child

ALL

Tired

Anemia

Low Platelets

Infection

KAPLAN MEDICAL



Adults
AML

Pancytopenia

1° Neutrophilic

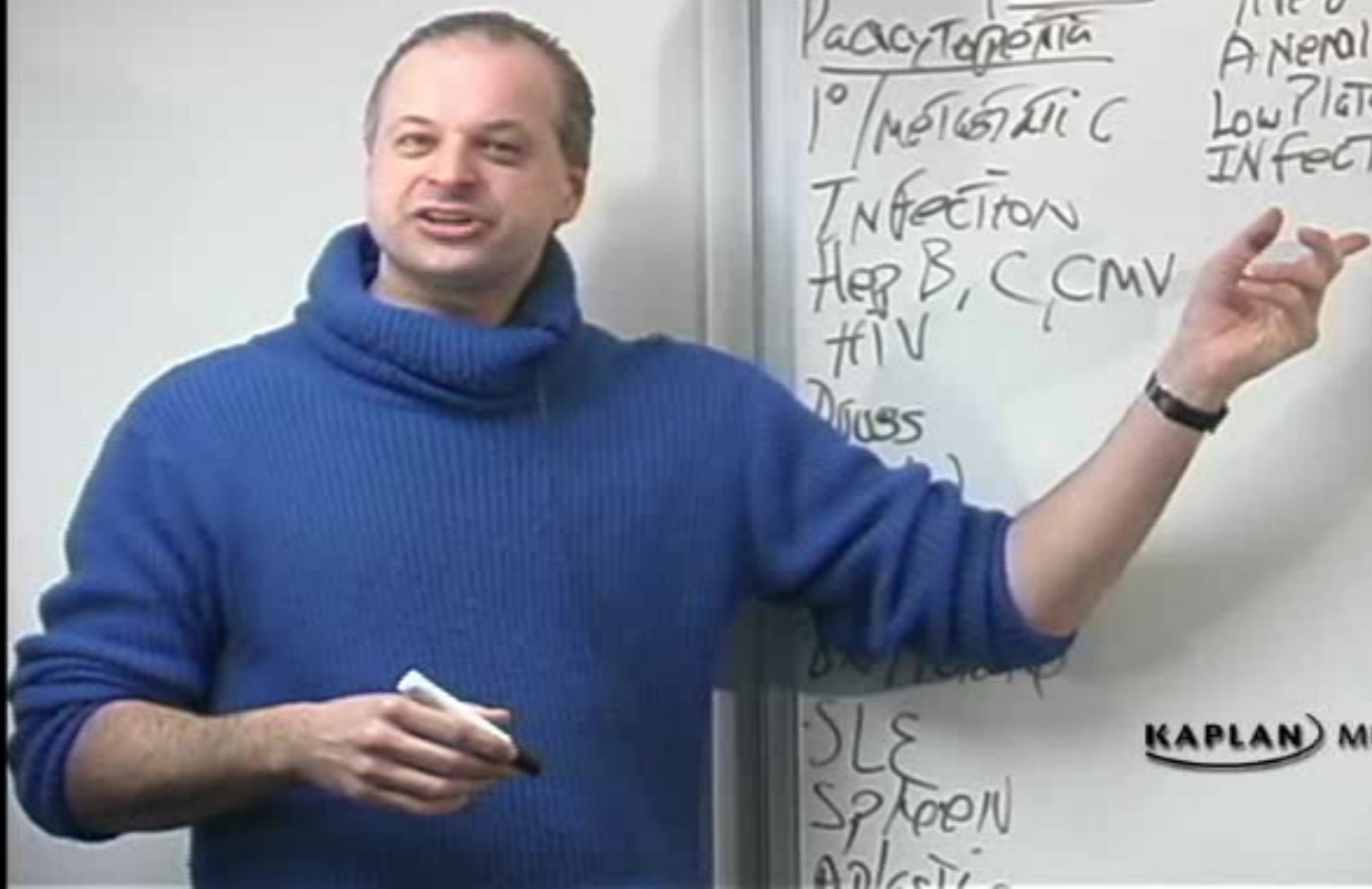
Infection

EBV, CMV

Acute Child
ALL

Tired
Anemia
Low Platelets
Infection

KAPLAN MEDICAL



Adults

AML

Pancytopenia

1°/Metabolic

Infection

Hep B, C, CMV

HIV

Drugs

(Splenomegaly)

Splenomegaly

SLE

Splenomegaly

Anemia

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

KAPLAN MEDICAL

Adults

AML

Pancytopenia

1°/Metabolic

Infection

Hep B, C, CMV

HIV

Drugs

Alcohol

radiation

vit D/folate

SLE

Splenomegaly

Alcohol

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

KAPLAN MEDICAL

Adults

AML

Leukocytosis

Neutrophils

Infection

Hep B, C
HIV

Polycythemia

SLE

Splenic

Aplastic

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

KAPLAN MEDICAL

Adults
AML

Pancytopenia

1°/Neoplastic

Infection

Hep B, C

HIV

Drugs

Alcohol

Radiation

BD/folate

SLE

Acute Children
ALL

Tired

Anemia

Low Platelets

Infection

KAPLAN MEDICAL

Adults

AML

Pancytopenia

1° Neutrophilic

Infection

Hep B, C

HIV

Folate

Leukemia

Stic

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blas

KAPLAN MEDICAL

Adults

AML

Pancytopenia

1°/Metabolic

Infection

Hep B, C

HIV

Drugs

Alcohol

Radiation

BD/Folate

Splen

Aplastic

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal



ADULTS

AML

Procyte

1°/Neut

Infection

Hep B

HIV

Radiation

BR/folate

SLE

Splenic

Aplastic

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

KAPLAN MEDICAL

Adults

AML

Pancytopenia

1° Neutrophilic

Infection

Hep B, C

HIV

Drugs

(s)

Drugs

SLE

Splenic

Aplastic

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

1/2

KAPLAN MEDICAL

Adults
AML

Pancytopenia

1°/Metastatic

Infection

Hep B, C

HIV

Drugs

Alcohol

Radiation

Marrow

Splenomegaly

Aplastic

Acute Children
ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Adults

AML

Pancytopenia

1° Metabolic

Infection

Hep B, C

HIV

Drugs

Alcohol

Radiation

BD/folate

SLE

Splenomegaly

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

MONOCLONAL

- Myeloperoxidase

- Auer Rod

Adults
AML

Pancytopenia

1°/Metastatic

Infection

Hep B, C

HIV

Drugs

Alcohol

Radiation

BR/folate

SLE

Leukemia

Aplastic

Acute Children
ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase

Auer Rod



Adults

AML

Pancytopenia

1°/Metabolic

Infection

Hep B, C

HIV

Drugs

Alcohol

Radiation

BD/folate

SLE

Splenomegaly

Aplastic

Acute Children
ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALL a

Myeloperoxidase

Auer Rod

KAPLAN MEDICAL

Adults

AML

Acute Children

ALL

Tired

mo

Anemia

Low Platelets

Infection

Blasts

MONOCLONAL

operoxidase

Pod

CALLA

711 v - M
Drugs

BR/folate

SLE

Splen

Aplastic

KAPLAN MEDICAL



Adults
AML

Acute Children
ALL

Tired
Anemia
Low Platelets
Infection
M0
M7
Blasts
Monoclonal

7114
Drugs
Alcohol
Radiation
BR/folate
SLE
Splenomegaly
Aplastic
- Myeloperoxidase
- Auer Rod
CALLA

KAPLAN MEDICAL



Adults
AML

Acute Child
ALL

(M3:)

M0

M7

Tired
Anemia
Low Platelets
Infection

Blasts
MONOCLONAL

70-80%
Myeloperoxidase
Rod

BR/folate

SLE

Splenic

Aplastic

KAPLAN MEDICAL

Adults

AML

M3:P

M0

M7

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase
Auer Rod

CALL a

Radiation
BR/folate

SLE

Splen

Aplastic

KAPLAN MEDICAL

Adults
AML

(M3: DIC) $\xrightarrow{M0}$
 $\xrightarrow{M7}$

Acute Children
ALL

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

711 U
Dress
(Alcohol)

- Myeloperoxidase
- Auer Rod

CALL a

Radiation
BR / folate
SIS

ON
Aplastic

KAPLAN MEDICAL

Adults

AML

Acute Children

ALL

M3: DIC

M0

M7

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

- Myeloperoxidase

- Auer Rod

CALLA

KAPLAN MEDICAL



KAPLAN MEDICAL

Adults
AML

Acute Children
ALL

M3: DIC

M0

M7

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

CALLA

711 U - Myeloperoxidase
Dress - Auer Rod
Alcohol - Daunorubicin

Radiation +
BR / folate A

Adults

AML

M3: DIC

M0

M7

Acute Children
ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase

Auer Rod

Doxorubicin

+

Ara-C

CALLA

Dr. John
Aplastic

KAPLAN MEDICAL



Adults AML Acute Children ALL

M3: DIC } m0 Tired Anemia Low Platelets Infection
↓
m7 Blasts
Monoclonal

Myeloperoxidase
Auer Rod
CALLA

~~Idarubicin~~ Daunorubicin
+ Ara-C

Adults

AML

M3: DIC

M0

M7

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

- Myeloperoxidase
Auer Rod

CALLA

Idarubicin Daunorubicin

+

Ara-C

M3 Add ATRA

Adults

AML

M3: DIC

M0

M7

Acute Children
ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase
Auer Rod

CALL a

Idarubicin Daunorubicin

+ Ara-C

M3 Add ATRA

KAPLAN MEDICAL



ADULTS
AML

(M3: DIC) $\xrightarrow{M0}$ \downarrow $M7$

Tired
AN
Low
INF
B
MO

- Myeloperoxidase
Auer Rod
(Idarubicin) Daunorubicin
+ Ara-C

M3 Add ATRA

KAPLAN MEDICAL

the Children
ALL

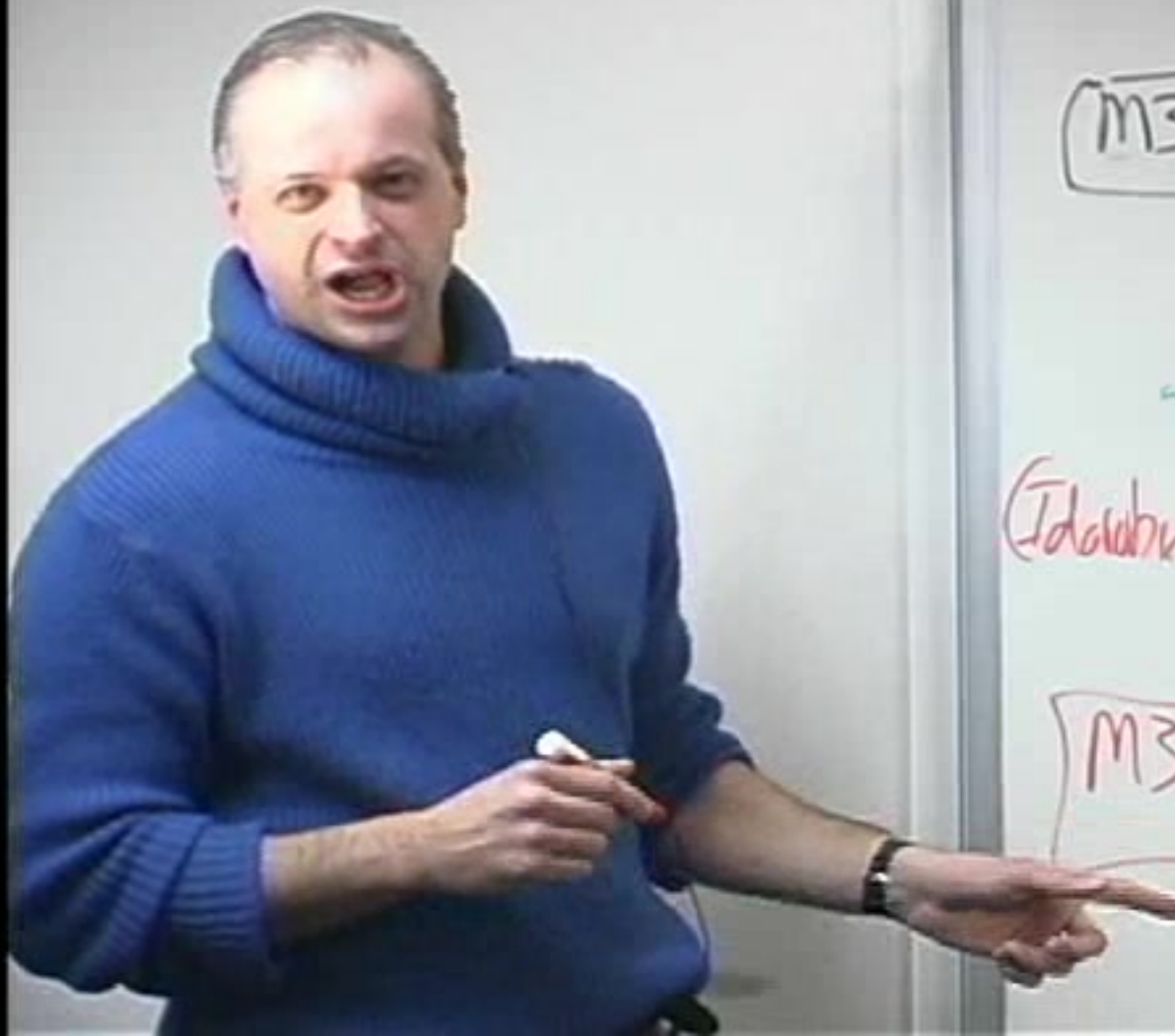
ed
epid
7/10/01's
fections
[STIS
functional
ALL G



KAPLAN MEDICAL



KAPLAN MEDICAL



Adults AML Acute Childre ALL

M3: DIC $\begin{matrix} \nearrow m0 \\ \searrow m7 \end{matrix}$ Tired
Anemia
Low Platelets
Infection
Blasts
MONOCLONAL

\nearrow Myeloperoxidase \searrow CALL
Auer Rod

~~Idarubicin~~ Daunorubicin
+ Ara-C

M3 Add ATRA

KAPLAN MEDICAL

Adults
AML

Acute Childre
ALL

(M3: DIC)

Tired
Anemia
Low Platelets
Infection

M0
M7
Blasts
Monoclonal

- Myeloperoxidase
Auer Rods
CALL

(Idarubicin) Daunorubicin

+ Ara-C

M3 Add ATRA

KAPLAN MEDICAL

Adults
AML

Acute Children
ALL

Tired
Mo Anemia
Low Platelets
Infection

Blasts

MONOCLONAL

Myeloperoxidase

CALLA

Doxorubicin

Doxorubicin

Vincristine



Adults

AML

M3: DIC

M0

M7

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

- Myeloperoxidase
Auer Rod

CALL

~~Idarubicin~~ Daunorubicin

+ Ara-C

M3 Add ATRA

Daunorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

Adults

AML

M3: DIC

M0

M7

Acute Children
ALL

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

Myeloperoxidase
Auer Rod

CALL

~~Idarubicin~~ Daunorubicin

Daunorubicin

Vincristin

Prednisone

Ara-C

M3 Add ATRA

KAPLAN MEDICAL

Adults

AML

(M3: DIC)

M0

M7

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

CALLA

Myeloperoxidase

And

Doxorubicin

Vincristine

Prednisone

TRA

KAPLAN MEDICAL

Adults

AML

M3: DIC

M0

M7

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase
or Rod

CALLA

Doxorubicin

Doxorubicin

Ara-C

Vincristine

ATRA

Prednisone

KAPLAN MEDICAL



Adults
AML

(M3: DIC)

M0

M7

Acute Children
ALL

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

Myeloperoxidase
Auer Rod

CALLA

~~Idarubicin~~ Daunorubicin

Daunorubicin

Vincristine

Prednisone

+ Ara-C

M3 Add ATRA

KAPLAN MEDICAL

Adults

AML

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase
or Aod

CALL

Doxorubicin

Doxorubicin

VP-16

Vincristine

PA

Prednisone

BMT

KAPLAN MEDICAL



Adults

AML

M3: DIC

M0

M7

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase
Auer Rod

CALLA

Doxorubicin

Doxorubicin

+ Ara-C

Vincristine

M3 Add ATRA

Prednisone

ISMT

KAPLAN MEDICAL

ISMT

Acute Children

WTS
AML

ALL

B: DIC

m0
m7

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

- Myeloperoxidase
- Auer Rod
- Daunorubicin

+ Ara-C
3 Add ATRA

(BMT)

100,000

Adults Acute Children
AML ALL

100,000,000

(M3)

Platelets
Tissue
Stem

Functional

ALL

Chemo

(Idarubicin)

M

Adriamycin

SMT

KAPLAN MEDICAL

Adults

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Functional

ALL

Doxorubicin

Vincristine

Flutamide

KAPLAN MEDICAL

100

Chemo 99.



Adults

AML

Acute Children

ALL

M3: DIC

M0

M7

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

ALL

Doxorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

BMT

BMT

Adults
AML

Acute Children
ALL

Tired
Anemia
Low Platelets
Infection

Blasts
MONOCLONAL

Chemo
more
CALL

Doxorubicin
 Vincristine
 Prednisone

KAPLAN MEDICAL

BMT

Adults
AML

Acute Children
ALL

m0
m7

Tired
Anemia
Low Platelets
Infection

Blasts
MONOCLONAL

ALL a

Chemo
more

Doxorubicin
Vincristine
Prednisone
KAPLAN MEDICAL

IRMT

Adults
AML

Acute Children
ALL

100

Tired
Anemia
Low Platelets
Infection

Blasts
MONOCLONAL

Chemo 99.
more 90

ALL a more 90

Daunorubicin more 90
Vincristine
Prednisone

KAPLAN MEDICAL

BMT

Adults Acute Children
ALL

Tired
Anemia
Low Platelets
Infection

Blasts

monoclonal

→ CALL

Chemo 99.99%

more 99.99%

Doxorubicin more 99.99%

vincristine

prednisone

KAPLAN MEDICAL

RMT

Adults AML Acute Children ALL

WBC: DIC

Tired
Anemia
Low Platelets
Infection

Blasts

Chemo 99
more 9

Doxorubicin more
Cytosine

Fluorouracil

KAPLAN MEDICAL

Adults

Acute Children

ALL

100

Tired

Anemia

Low Platelets

Infection

Blasts

Clonal

ALL a

Chemo 99.

more 90

Doxorubicin more

Cisplatin

Flutamide

KAPLAN MEDICAL

(M3)

Adults Acute Children
ALL

100

Tired
Anemia
Low Platelets
Infection

Blasts

Clonal

ALL

Chemo 99.

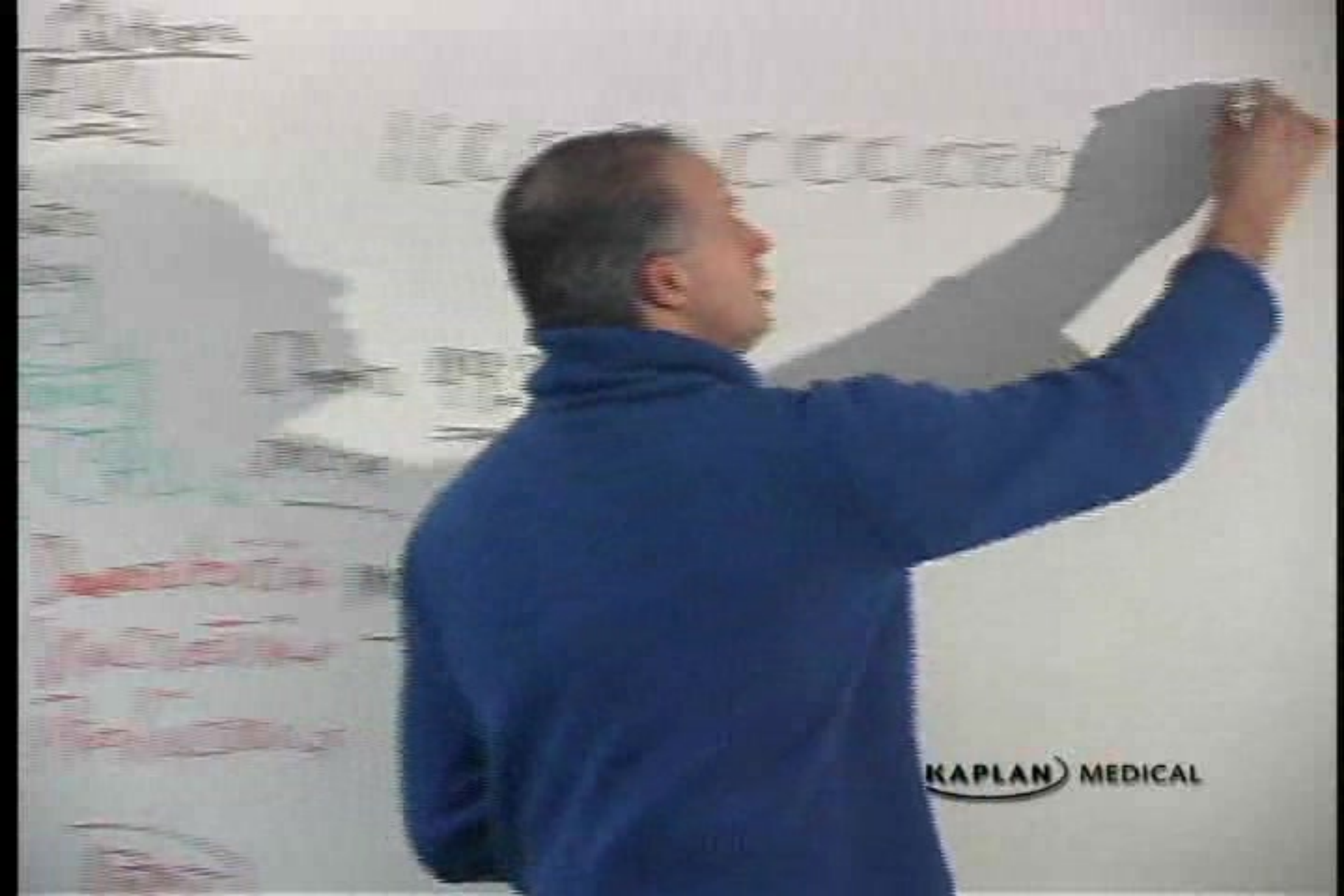
more 90

doxorubicin more

cytarabine

vincristine

HAPLAN MEDICAL



KAPLAN MEDICAL

BMT

KAPLAN MEDICAL

BMT

Genetic Matched
And Rel

20%

KAPLAN MEDICAL

Adults

AML

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

MONOCLONAL

CALL

Doxorubicin

Vincristine

Daunorubicin

KAPLAN MEDICAL

children

LL

10,000,000,000

BMT

99

Allogeneic m-
A

KAPLAN MEDICAL

BMT

Genetic Matched AND Related 20%

Unrelated

KAPLAN MEDICAL

Adults

AML

M3: DIC

M0

M7

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase
Auer Rod

Idarubicin Daunorubicin

Daunorubicin

Ara-C

Vincristine

M3 Add ATRA

Prednisone

KAPLAN MEDICAL

BMT

BMT

Adults AML Acute Children ALL

B: DIC } m0
Tired Anemia
Low Platelets
Infection
m7 } Blasts
MONOCLONAL

100,000,000

Chemo 99.9%
more 99.9%

ra-C
ATRA

VINCristine
Prednisone

BMT

BMT

KAPLAN MEDICAL

Adults AML Acute Children ALL

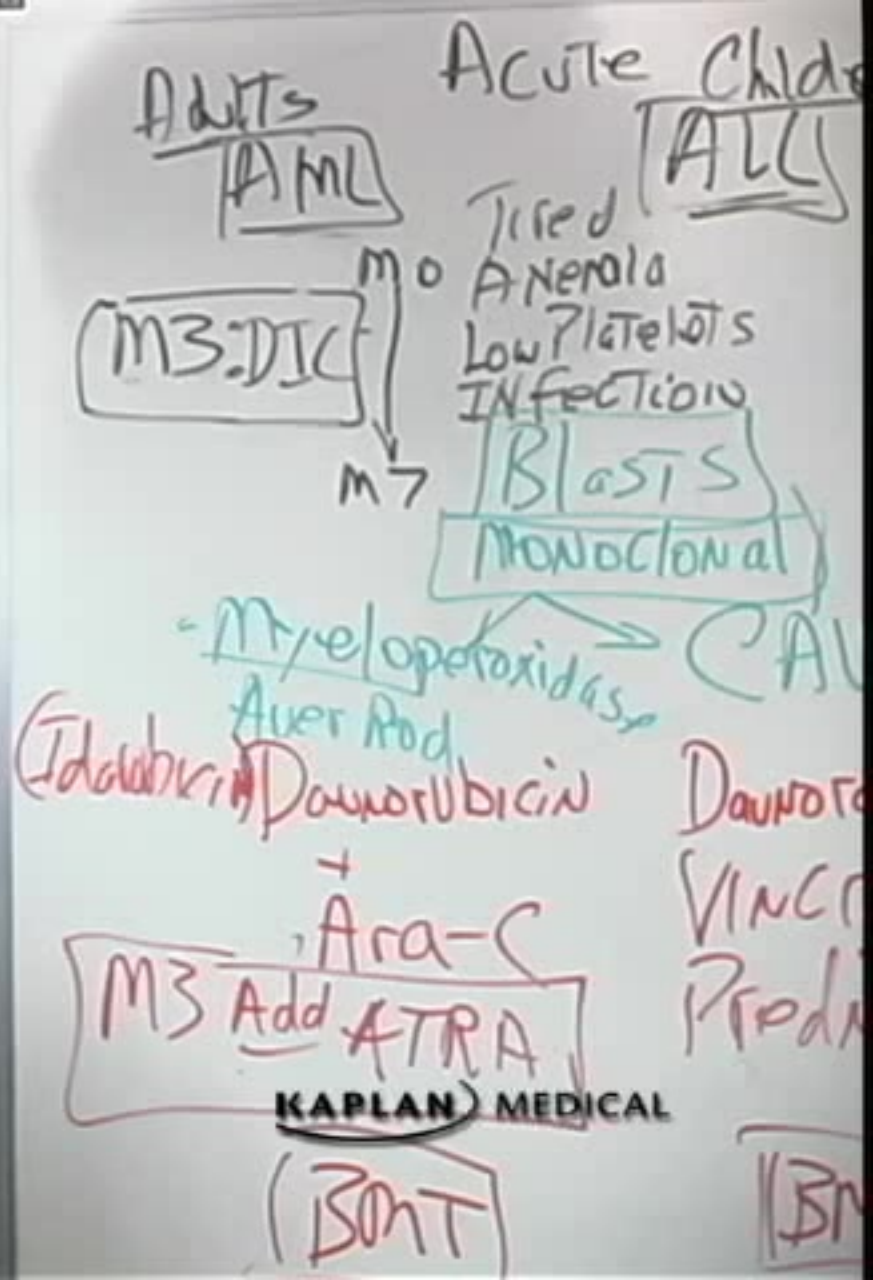
100,000,000,0

M3: D10

Chemo 99.9%

MOT4 99.9%

KAPLAN MEDICAL



Cute Children
TALL

100,000

Bo

Allogeneic

KAPLAN MEDICAL



Adults

AML

(M3: DIC)

M0

M7

Acute C
[A]

Tired

Anemia

Low Platelets

Infection

Blasts

MONOCLONAL

Myeloperoxidase
Auer Rod

Doxorubicin

+ Ara-C

dd ATRA

KAPLAN MEDICAL

(BMT)

ALL
AML

Acute Children
ALL

100

Tired
Anemia
Lymphocytes
Infection

Blasts
Proliferation

Doxorubicin
Vincristine
Prednisone

KAPLAN MEDICAL

BMT

Adults

AML

Acute Children

ALL

100

Tired
Anemia
Low Platelets
Infection

Plasma

ALL a

bicin

triv

sony

KAPLAN MEDICAL

MT

Adults

AML

Acute Children

ALL

100

Tired
Anemia

Low Platelets
Infection

Blasts

MONOCLONAL

CALLG

Doxorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

BMT

Adults
AML

Acute Children
ALL

M3: DIC
M0
M7

Tired
Anemia
Low Platelets
Infection

Blasts
MONOCLONAL

Myeloperoxidase
Auer Rod

CALLA

Idarubicin Daunorubicin

Daunorubicin

+ Ara-C

Vincristine

M3 Add ATRA

Prednisone

KAPLAN MEDICAL

BMT

BMT

ADULTS

AML

Acute Children

ALL

Tired

Anemia

mo

ts

M3: DIC

at

ALL

Doxorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

BM

Adults

AML

Acute Children

ALL

M3: DIC

M7

Jan 1 →
\$1 0.01



ADULTS
AML

Acute Children
ALL

Tired
Anorexia
Low Platelets
Infection

Jan 1
\$ 0.01

m0
m7
Blasts
Monoclonal

ALL

Doxorubicin
Vincristine
Prednisone

KAPLAN MEDICAL

BMT

Adults AML Acute Children ALL

(M3:D)

leukemia
platelets
anemia

Jan 1
\$10.01

CLL
monoclonal

CALL

(Idarubicin)

Doxorubicin
Vincristine

(M3)

KAPLAN MEDICAL

(BMT)

Children
ALL

BMT

Allogeneic Match
AND
Match

KAPLAN MEDICAL

BMT

Autologous

Allogeneic Matched AND Related

Matched & Unrelated

KAPLAN MEDICAL

BMT

Autologous +/- Stem

Allogeneic Matched 20%

Unrelated 30%

Adults Acute Children
AML ALL

M3:

Tired
Neutrophils
Platelets
Fibrinogen
Plasmin
Fibrinolysis

ALL a

doxorubicin

vincristine

cytarabine

KAPLAN MEDICAL

Children
(L)

ALL
unrelated
autologous
allogeneic

(BMT)

BMT

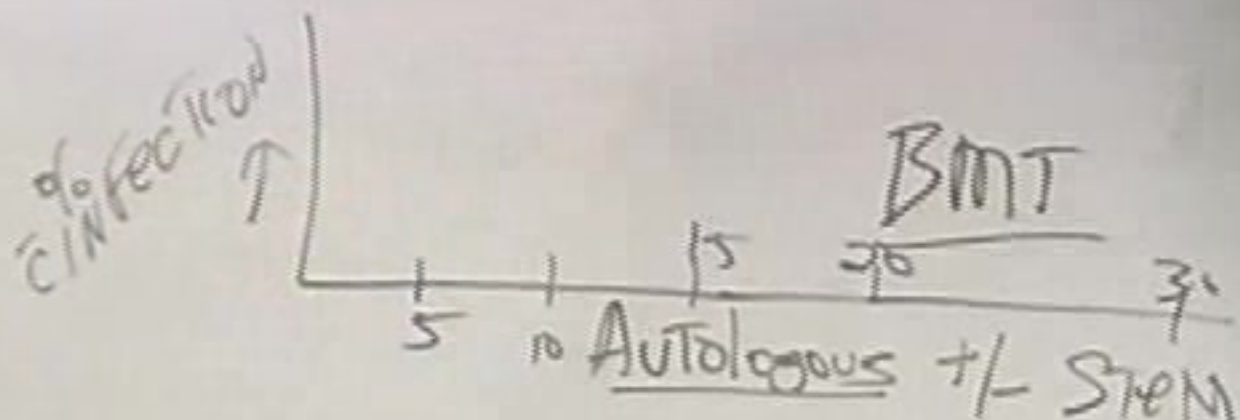


Allogeneic +/- Stem

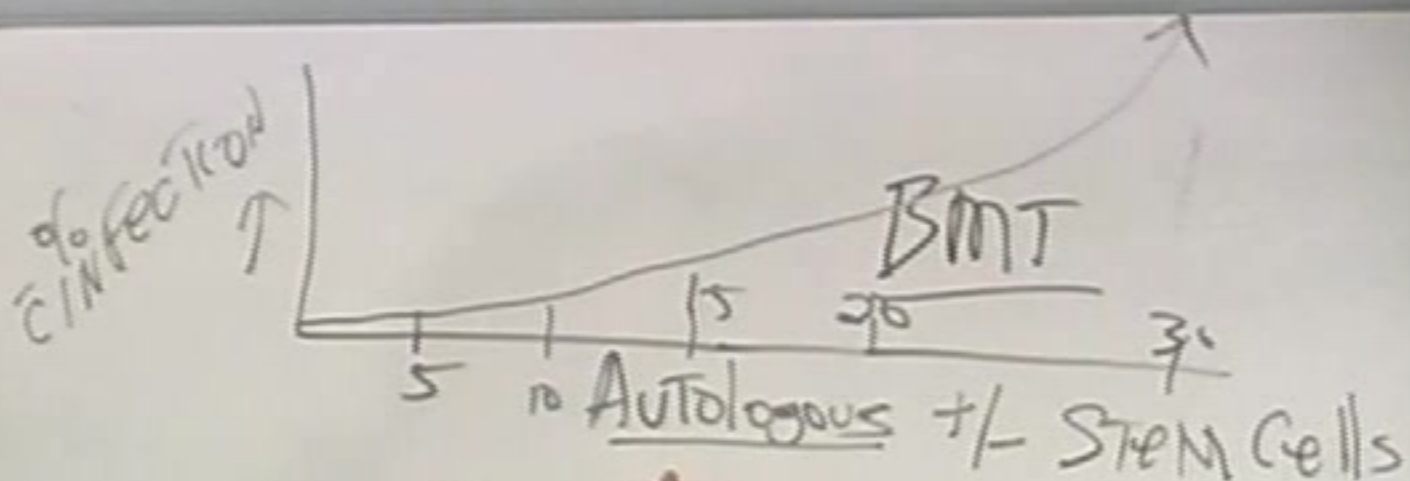
Allogeneic Matched
AND Re

Matched
↓

Children

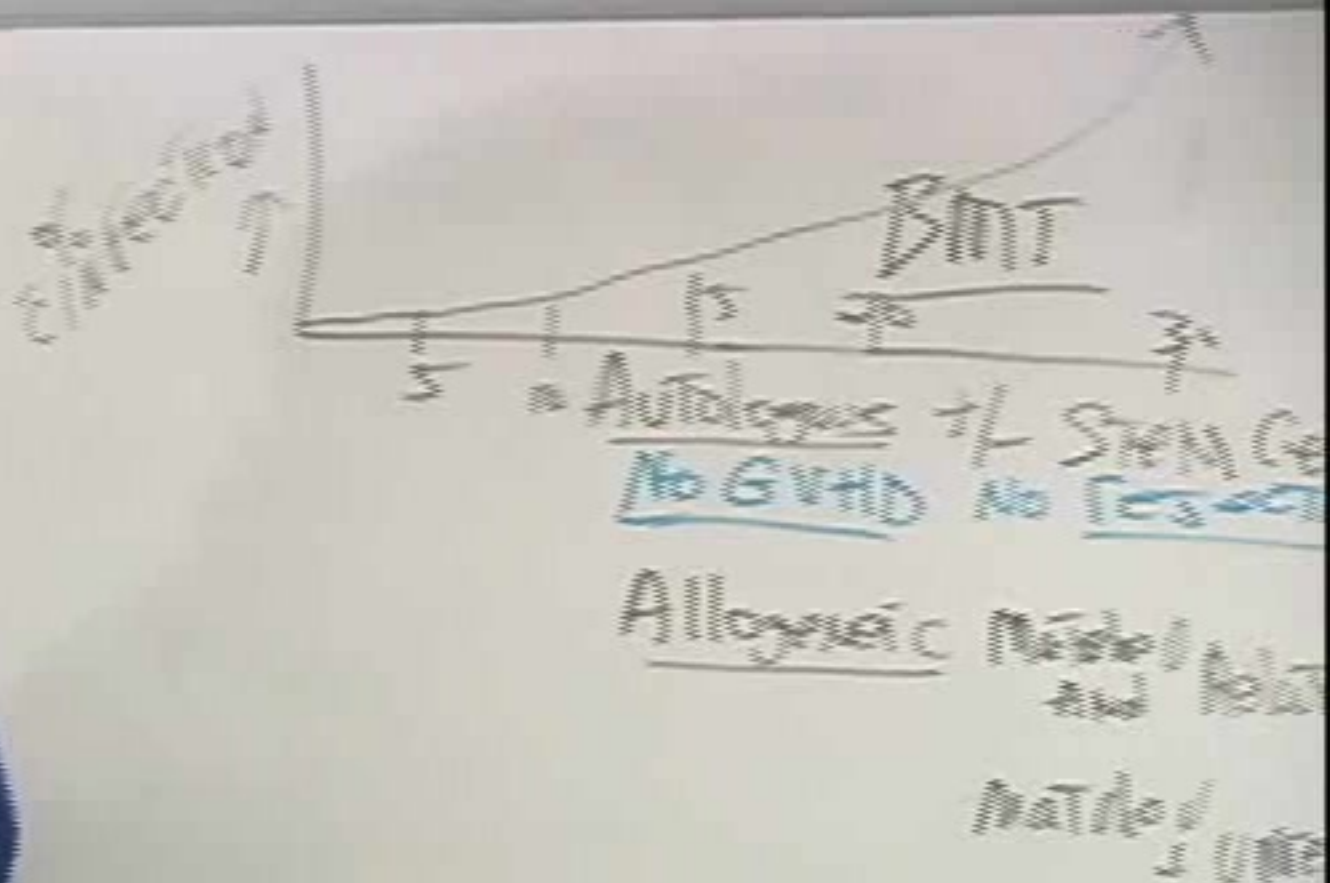


Allogeneic Method
AND Re
Method
↓ U



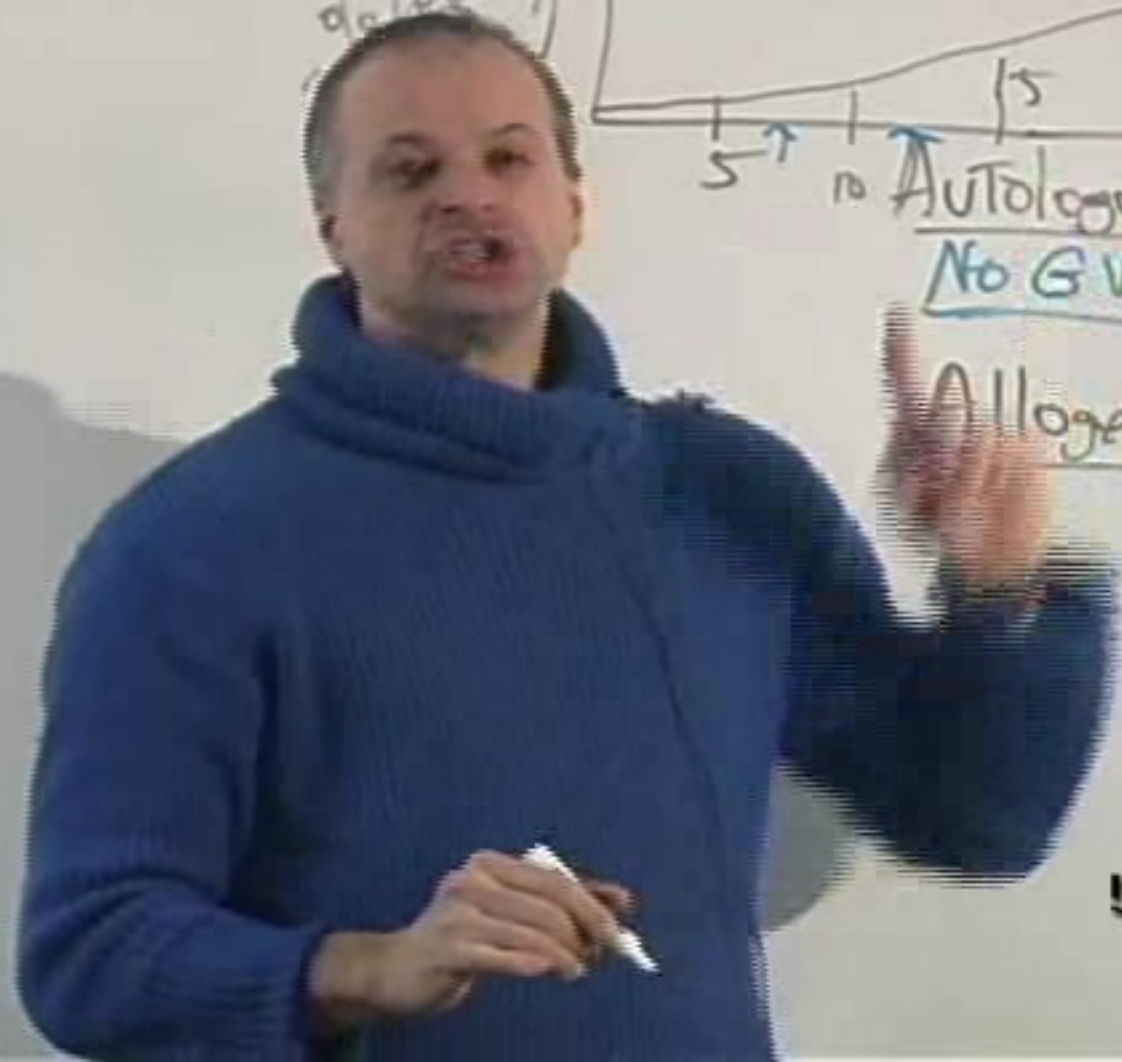
Allogeneic Matched AND Related

Matched & Unrelated

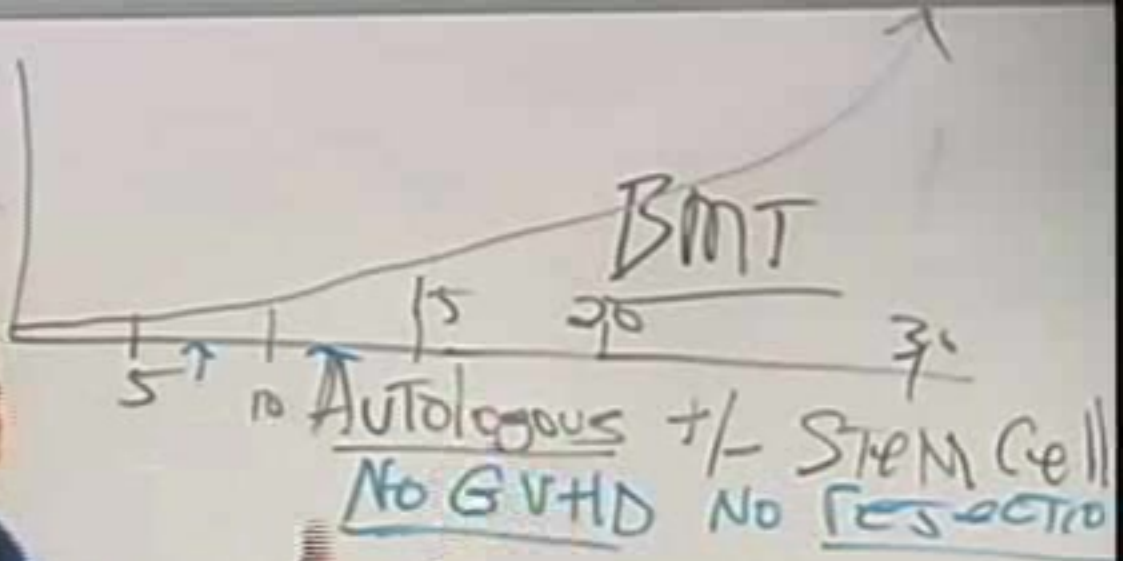




KAPLAN MEDICAL



delayed ↑



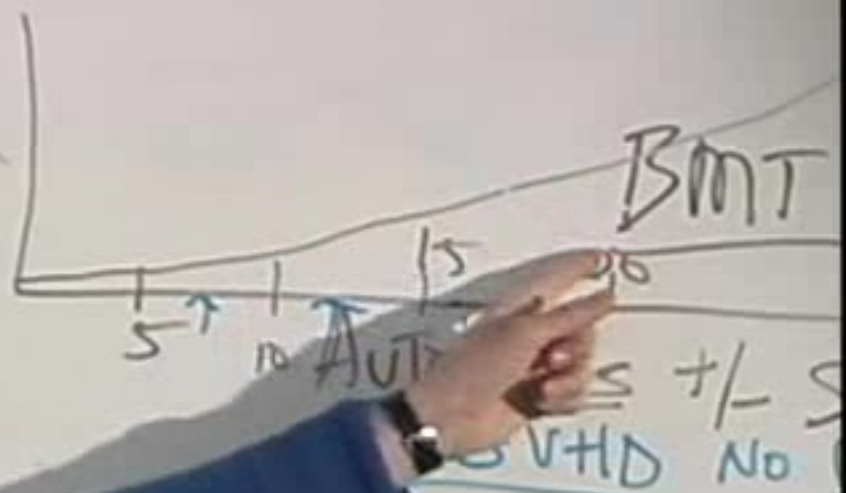
Allogeneic Matched And Relative Matched Unrelated

Children
ALL

lots
of
S
ONAL
CALL

Daughter
VINO
Ppa

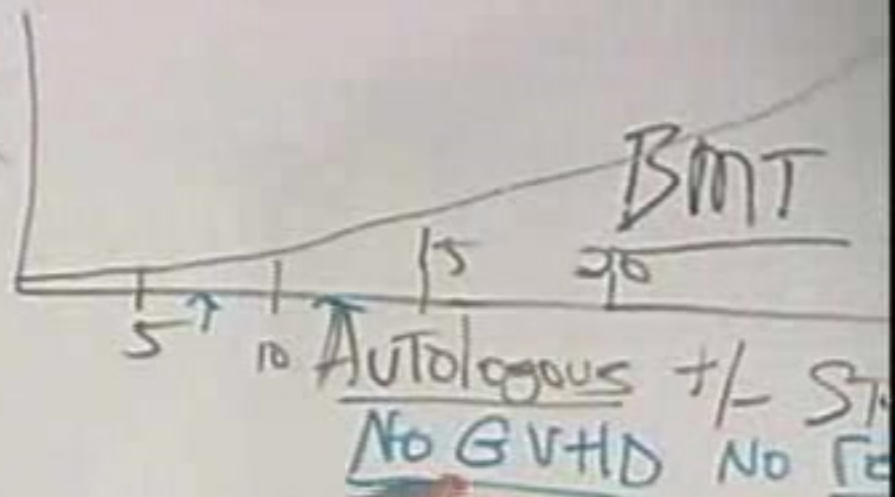
% infection ↑



Allogeneic Marrow
A
Mat

Children
ALL

infection ↑



Genetic Material
AND
Material

Adults

Acute Children

ALL

Tired
Anemia
Low Platelets
Infection

Blasts

monoclonal

ALL a

doxorubicin

cisplatin

vincristine

KAPLAN MEDICAL

Adults
AML

ALL

M0
M3: DIC
M7

Tired
Anemia
Low Platelets
Infection

Blasts

MONOCLONAL

- Myeloperoxidase
Auer Rod

CALL

(Idarubicin) Daunorubicin

Daunorubicin

+ Ara-C

Vincristine

M3 Add ATRA

Prednisone

(BMT)

KAPLAN MEDICAL
BMT

Adults

AML

Acute Children

ALL

Tired

Anemia

Low Platelets

Infection

INT

Blasts

MONOCLONAL

DOXORUBIN

VINCRISTINE

PREDNISONE

KAPLAN MEDICAL

IRMT

% infection



Adults

AML

M3: DIC

M0

M7

Acute Childre

ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase

ALL

Daunorubicin

Ara-C

ATRA

Daunorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

RMT

RMT

Adults
AML

Acute Children
ALL

M3: DIC

Interleukin
MTX

Idarubicin

M3 A

HAPLAN MEDICAL

Adults

AML

Acute Children

ALL

M3: DIC

M0

M7

Tired

AN

Low

INF

Tranexa

MTX

% infection ↑

5

39 ♀ WBC
240,000

- Myelo

Aver

Labakerin Do

M3 Add

KAPLAN MEDICAL

Adults

AML

B3: DIC

M0
M7

Acute Children

ALL

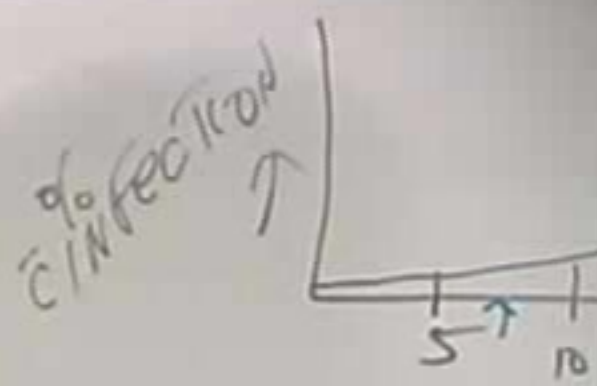
Tired
Anemia
Low Platelets
Infection

Bleeding

Neuro

- Myeloma
Auer
bcr/abl Down

B3 Ad



39 ♀ WBC
240,000

- CVA (confusion)
- Dyspnea
- VISA

Acute Children

ALL

Tired

Anemia

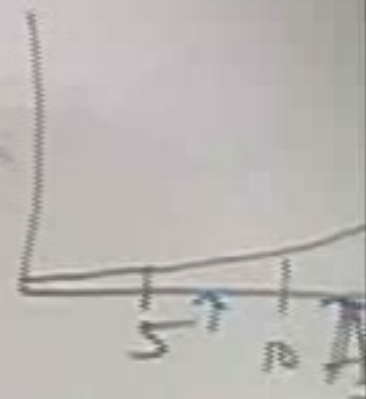
Low Platelets

Infection

Bl

TX

90% infected



39 ♀ WBC
240,000
CIA (Confusion)
Dyspnea
(Sua)

Adults
AML

Acute Children
ALL

(M3:DIC)

Interleukin
MTX

defect
infection ↑

39 ♀ WBC
240,000

→ CRA-CONFUSION
→ DYSPNOEA
→ VISUAL

ALL g

doxorubicin

INTX

KAPLAN MEDICAL

RMT

Acute Chills

DMs
AKI

ALL

MDV

Albendazole

MTX

Effectiveness



39 ♀ WBC

24000

→ CIA (Candida)
→ Dyspnea
→ (Sida)

ALL

Albendazole

Albendazole

KAPLAN MEDICAL

Adults
AML

Acute Children
ALL

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

Intrathecal
MTX

CALLA

Doxorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

RMT



KAPLAN MEDICAL

Adults Acute Children
AML ALL

(M3:DI)

Interleukin
MTX

do
c/infect

39 ♀ WBC

240,000

→ CVA - Conf

→ Dyspnea

→ Visual

Leukaphoria

(Ida)

KAPLAN MEDICAL

Acute Children
ALL

MBJY

MTX

39 0 WBL

340,000

CYA (Cytarabine)

Dys (Dysplasia)

(Visual)

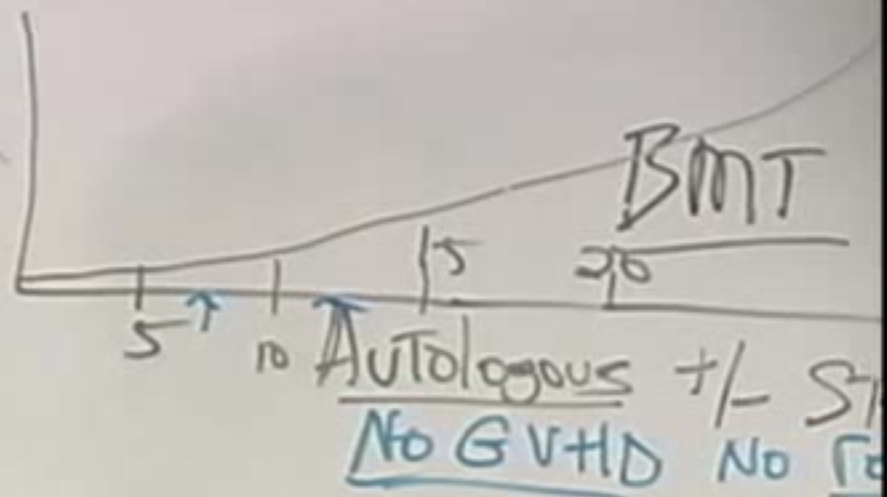
Leukaphoresis

KAPLAN MEDICAL

Children

FLC

% infection ↑



39 ♀ WBC
240,000
(CONFUSION)
4

Allogeneic Match
And
Match



Acute Leukemia

End

Acute Children
ALL

CML

Ch

Tired
Anemia
Low Platelets
Infection

Blast
Monoclonal

15
Autolog
No G
Allog

ADTs

AML

Acute Children

771

CML

13: DIC

mo

Tire &
A New

Low

1

Sectional

INTRO

MT

CALL a

No.

oxidase

antibiotic

Ara-C

WATRA

Dauromycin

VINCISTIN

Prodigious
KAPLAN

KAPLAN MEDICAL

11 RMT

Adults Acute Children
ALL

CML

CL

M3

Wired
Nephro
w/ Platelets
fection

Intact
MT.



PlasTS

clonal

all a

ubicin

STINW

SONY

KAPLAN MEDICAL

Adults
AML

Acute Children
ALL

ML

CL

Tired
Anemia
Low Platelets
Infection
MT.



CALLA

Doxorubicin
Vincristine
Prednisone

BMT

Adults

AML

Acute Children

ALL

CML

CLL

(M3:DL)

se
prola
Platelets
action

↑ INTRON

MT



DICIN
STINW
ISONW

KAPLAN MEDICAL

Adults

Adults

Children

5-12 weeks

AML

ALL

M3: DIC

M0

Tired

Anemia

Low Platelets

Infection

Inter

MT.

M7

Blasts

Monoclonal

Preleukemia

ALL

Acute

Doxorubicin

Doxorubicin

Ara-C

Vincristine

M3 Add ATRA

Prednisone

KAPLAN MEDICAL

(BMT)

(BMT)

Children
ALL

lots of
info
IS
onal
Intact
MT.

CALL

Daunorubicin
Vincristine
Prednisone

CML

CLL

O-↑WBC

BMT

Autologous +/- S
No GVHD No

Allogeneic Match
A

Mat

Children
ALL

CML

CLL

0 - ↑ WBC } 10-12
1 - ⊕ Nodes } year



Autologous
No GVH

CALL

Doxorubicin
Vincristine
Prednisone

KAPLAN MEDICAL

CML

CLL

0 - ↑ WBC } 10-12
1 - ⊕ Nodes } years
2 - spleen

CML

CLL

- 0 - ↑ WBC
 - 1 - ⊕ Nodes
 - 2 - spleen
 - 3 - ANEMIA
 - 4 - ↓ platelets
- 10-12 years
5

Adults

Acute Children

CML

6-12
weeks

AML

ALL

(M3:DJ)

Tired
Fever
Platelets
infection

Intact
MT.



(T)

G
icin
w

KAPLAN MEDICAL

Adults

Acute Children

CML

6-12 weeks

AML

ALL

(M3:D)

Good
prognosis

leukocytes

in blood

stasis

functional

Intact

MT.



ALL a

doxorubicin

cytarabine

vincristine

KAPLAN

MEDICAL

Adults

Acute Children

CML

CL

6-12
weeks

AML

ALL

(M3:DIC)

Adults

Integr.
MT.



KAPLAN MEDICAL

Children
ALL

CML

CLL

0 - ↑ WBC } 10-12
1 - ⊕ Nodes } years

2 - spleen } 5

3 - ANEMIA } 1-2

4 - ↓ platelets } years



Adults

AML

6-12 weeks

M3: DIC

M7

- Myeloid

Acute M

(Idarubicin) Daunorubicin

- A

M3 Add A

Acute Children

ALL

7 Inter

M+

CML

CLL

Idarubicin

Daunorubicin

Fluorouracil

KAPLAN MEDICAL

Acute Children

ALL

CML

CLL

- 0 - ↑ WBC
- 1 - ⊕ No
- 2 - SPH
- 3 - ANE
- 4 - ↓ p/



CALL

Doxorubicin

Vincristine

Prednisone

Children
ALL

CML



CLL

0 - ↑ WBC } 10-12
1 - ⊕ Nodes } years
2 - spleen } 5
3 - ANEMIA } 1-2
4 - ↓ platelets } years

ML



CLL

0 - ↑ WBC } 10-12
1 - ⊕ Nodes } years
2 - spleen } 5

anemia } 1-2
platelets } years

Fludarabine

CH

CLL 0 - ↑ WBC } 10-12
1 - ⊕ Nodes } years
2 - spleen } 5

ANEMIA } 1-2
↓ platelets } years

Fludarabine

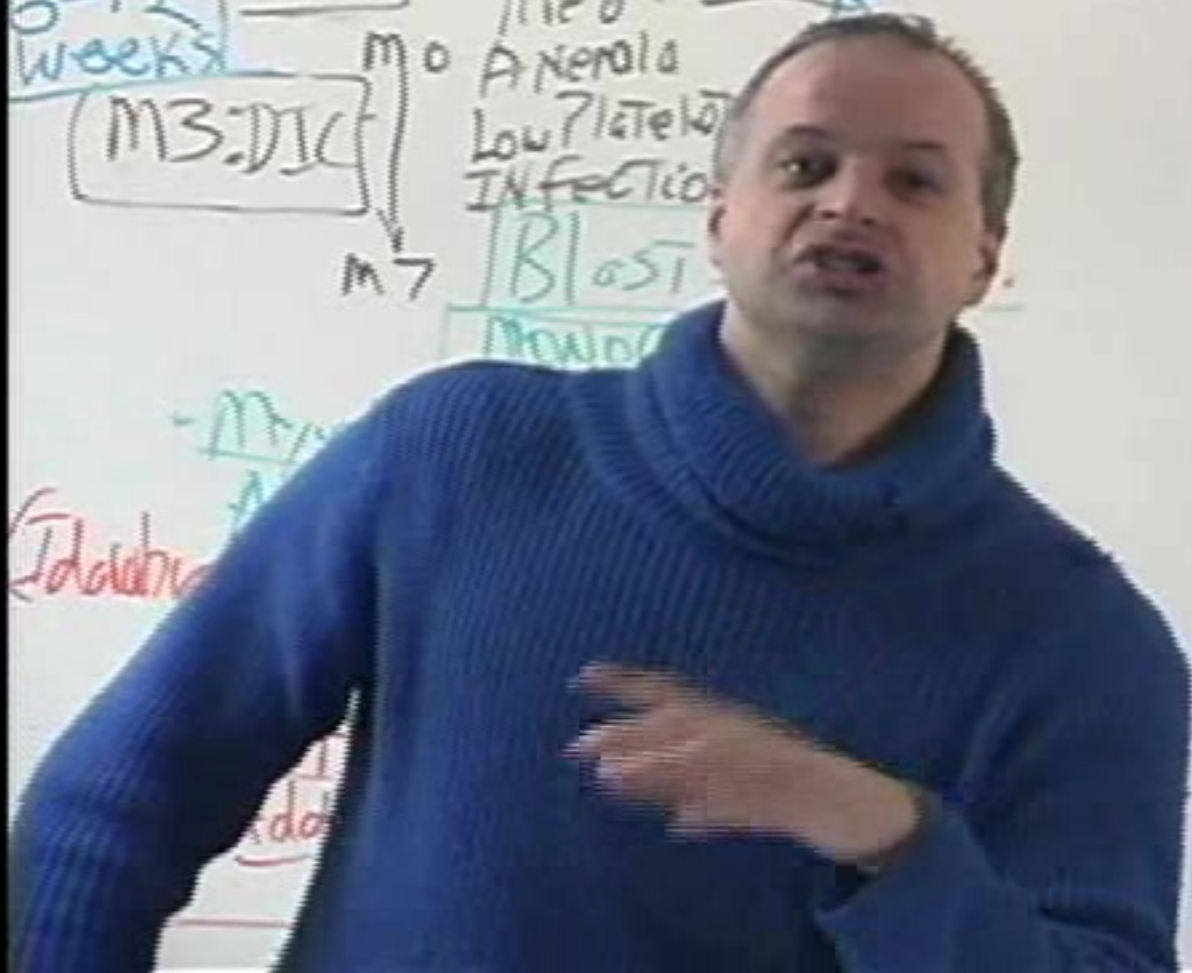
(chlorambucil)

Adults
 0-12 weeks
 AML
 M3: DIC
 M0
 M7
 Tired
 Anemia
 Low Platelets
 Infection
 ALL
 Blast

CML

CLL

0
1
2
3



Acute Leukemia

ALL

CML

CLL

- 0 - Tumor
- 1 - Erythrocytes
- 2 - Splenomegaly
- 3 - Anemia
- 4 - Leukocytosis



Red
Pneumonia
Infection
Leukemia
Chills
Fever
Night sweats
Weight loss
Bone pain
Easy bruising
Fatigue
Headaches
Nausea
Vomiting
Diarrhea
Constipation
Abdominal pain
Joint pain
Muscle pain
Rash
Hives
Itching
Sore throat
Cough
Shortness of breath
Chest pain
Dizziness
Lightheadedness
Fainting
Seizures
Stroke
Heart attack
Kidney failure
Liver failure
Pancreas failure
Adrenal failure
Thyroid failure
Parathyroid failure
Pituitary failure
Hypothalamus failure
Brain failure
Spinal cord failure
Nerve failure
Muscle failure
Skin failure
Immune system failure
Endocrine system failure
Reproductive system failure
Digestive system failure
Circulatory system failure
Respiratory system failure
Urinary system failure
Integumentary system failure
Skeletal system failure
Nervous system failure
Musculoskeletal system failure
Cardiovascular system failure
Lymphatic system failure
Endocrine system failure
Reproductive system failure
Digestive system failure
Circulatory system failure
Respiratory system failure
Urinary system failure
Integumentary system failure
Skeletal system failure
Nervous system failure
Musculoskeletal system failure
Cardiovascular system failure
Lymphatic system failure

Adults

Acute Children

ALL

CML

CLL

6-12 weeks

AML

M3: DIC

M0
M7

Tired

Low

IN

Treat

AT.



- Myeloid

Auer A

(Idarubicin) Daunorubicin

+

As

M3 Add A

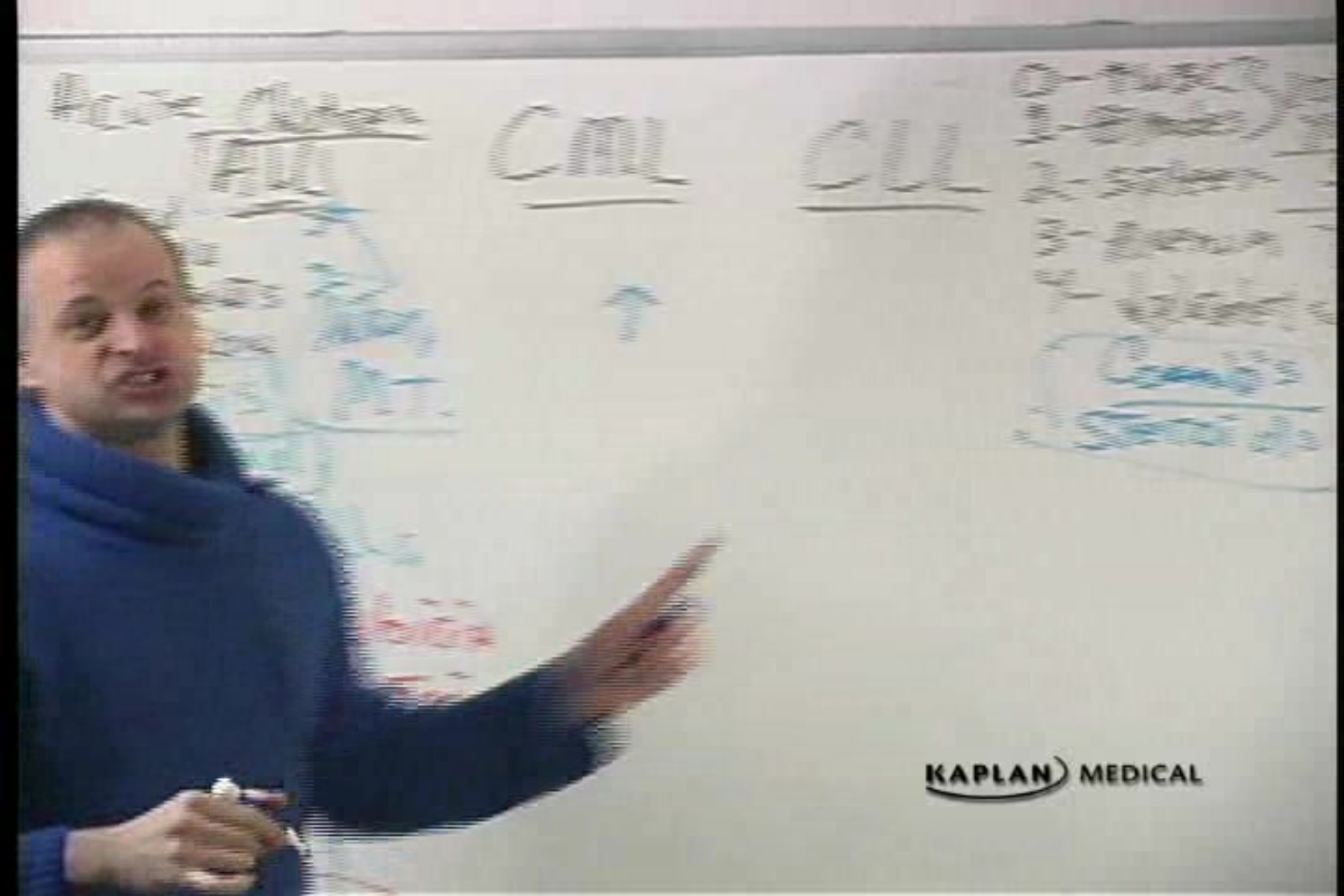
all a

ubicin

STIN

ISON

KAPLAN MEDICAL



Acute Abdomen
AUI

CMU

CU

2-10-2013
1-10-2013
2-10-2013
2-10-2013
2-10-2013
2-10-2013
2-10-2013
2-10-2013
2-10-2013
2-10-2013

Adults

Acute Children

CML

CLL

0-
1-
2-
3-
4-
5-

-12 weeks
AML

M3: DIC

M0
M7

Tired
ANEM
Low?
INF

MT.



Adults

Acute Children

ALL

CML

CLL

0-

1-

2-

3-

4-

5-

6-

7-

8-

9-

10-

11-

12-

13-

14-

15-

16-

17-

18-

-12 weeks

AML

M3: DIC

M

M

M

M

M

M

M

M

M

M

M

M

M

INT

MT.

MT.

MT.

MT.

MT.

MT.

MT.

MT.

MT.

MT.

MT.

MT.

MT.

47 ♂ office

Tire

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

↑ 58

KAPLAN MEDICAL

Acute Children

ALL

CML

CLL

47 ♂ office
↑ Tired
↑ 58,000 WBC
Diff → >90%
lymphs

- 0 - ↑ WBC
- 1 - ⊕ No
- 2 - SPH
- 3 - ANO
- 4 - ↓ pl
- Coa
- STER

ADULTS

6-12 AML

Acute Children
ALL

Tired

Anemia

Low Platelets

Infections

Blasts

Monoclonal

Infection

MT.

CML

478 off

Tire v

↑ 58,000

Diff →

DIGN

CRISTIN

ANISO

KAPLAN MEDICAL

Adults

Acute Children

6-12 weeks

AML

ALL

(M3:DI)

telomeres

chromosomes

TS

clonal

INTK

MT.

CML

CL

47 ♂ offical

Tire V

↑ 58,000 WBC

← Diff → > 9%

> 90%

(Idol)

bic

KAPLAN MEDICAL

ADULTS

Acute Children

ALL

CML

CLL

0-
1-
2-
3-
4-

47 ♂ office

Tire ✓
↑ 58,000 WBC

>90% Neutrophils → >90% Lymphs

KAPLAN MEDICAL

DxTs

Acute Children
ALL

CML CLL

Tired
Anorexia
Low Platelets
Infections

Blasts
Monoclonal

CALLA

Doxorubicin
Vincristine
Prednisone

BMT

47 ♂ office
Tire ✓

↑ 58,000 WBC

70% → Diff → 90%
neutrophils lymph

Reactive

KAPLAN MEDICAL



Adults

AML

6-12 weeks

M3: DIC

M0

M7

Acute Children
ALL

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase
Pod

Doxorubicin

Fluorouracil

TPA

ALL a

Doxorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

BMT



Adults

Acute Children

CML

AML

ALL

B-DIC

M0

Tired
Anemia
Low Platelets
Infection

M7

Blasts

Monoclonal

CALL

Daunorubicin

Vincristine

Prednisone

KAPLAN MEDICAL

BMT

40

↑

>90%
neutrophils

Adults

Acute Children
ALL

CML

C

6-12
weeks

AML

(M3:1)

Fused
Myeloid
Leukocytes
Function

ASTS

Monoclonal

ALL

doxorubicin

47% off
Tire V
↑ 58,000 w

>90% Diff
neutrophils

Reactive
Leukemia

KAPLAN MEDICAL

BMT

Adults

Acute Children
ALL

CML

CLL

6-12 weeks

AML

M3: DIC

M0

M7

Tired

Anemia

Low

Iron

Immune

System

Function

Normal

Leukocytes

Normal

Leukocytes

Normal

Leukocytes

Normal

Leukocytes

Normal

Leukocytes

Normal

Leukocytes

Normal

Leukocytes

Normal

47 ♂ office

Tire

↑ 58,000 WBC

>90%
neutrophils

LAP

Low

CML

active

leukemoid

leukemoid

leukemoid

leukemoid

leukemoid

leukemoid

leukemoid

leukemoid

leukemoid

leukemoid

Diff → >90%
lym

lym

lym

lym

lym

lym

lym

lym

lym

lym

lym

lym

lym

lym

lym

KAPLAN MEDICAL

Adults

Acute Children

ALL

CML

C

6-12 weeks

AML

M3

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

CALLA

Doxorubicin

Vincristine

Prednisone

47% off

Tire
↑ 58,000 WBC

>90%
Neutrophils

LAP

High

Reactive
Leukemia

KAPLAN MEDICAL

BMT

Adults

Acute Children
ALL

CML

CLL

6-12 weeks
AML

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

ALL

Doxorubicin Low

Vincristine CML

Prednisone

BMT

47 ♂ office

Tire
↑ 58,000 WBC

>90% Neutrophils
LAP
Diff → >90% Lym

High

Reactive
Leukemoid

KAPLAN MEDICAL

Adults

Acute Children
ALL

CML

CLL

6-12 weeks

AML

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

ALL

Doxorubicin Low

Vincristine CML

47 ♂ office

Tire
↑ 58,000 WBC

>90% Neutrophils
← Diff → >90% lymph

LAP

High

Reactive
Leukemoid

KAPLAN MEDICAL

BMT

Adults

6-12 AML

Acute Children
ALL

CML

Tired
Anemia
Low Platelets
Infection

Blasts
MONOCLONAL

Myeloperoxidase
CALLA

470
↑ 58
>90%
neutrophils
LAP

Doxorubicin
Vincristine
Prednisone

Low
CML

KAPLAN MEDICAL

BMT

Acute Children
ALL

Tired
Anemia
Low Platelets
Infection

Blasts
Monoclonal

ALL

Doxorubicin

Cyclophosphamide

Vincristine

Asparaginase

BMT

CML

CLL

(↑ spleen*)

47 ♂ office

↑ Titer
↑ 58,000 WBC

>90%
neutrophils

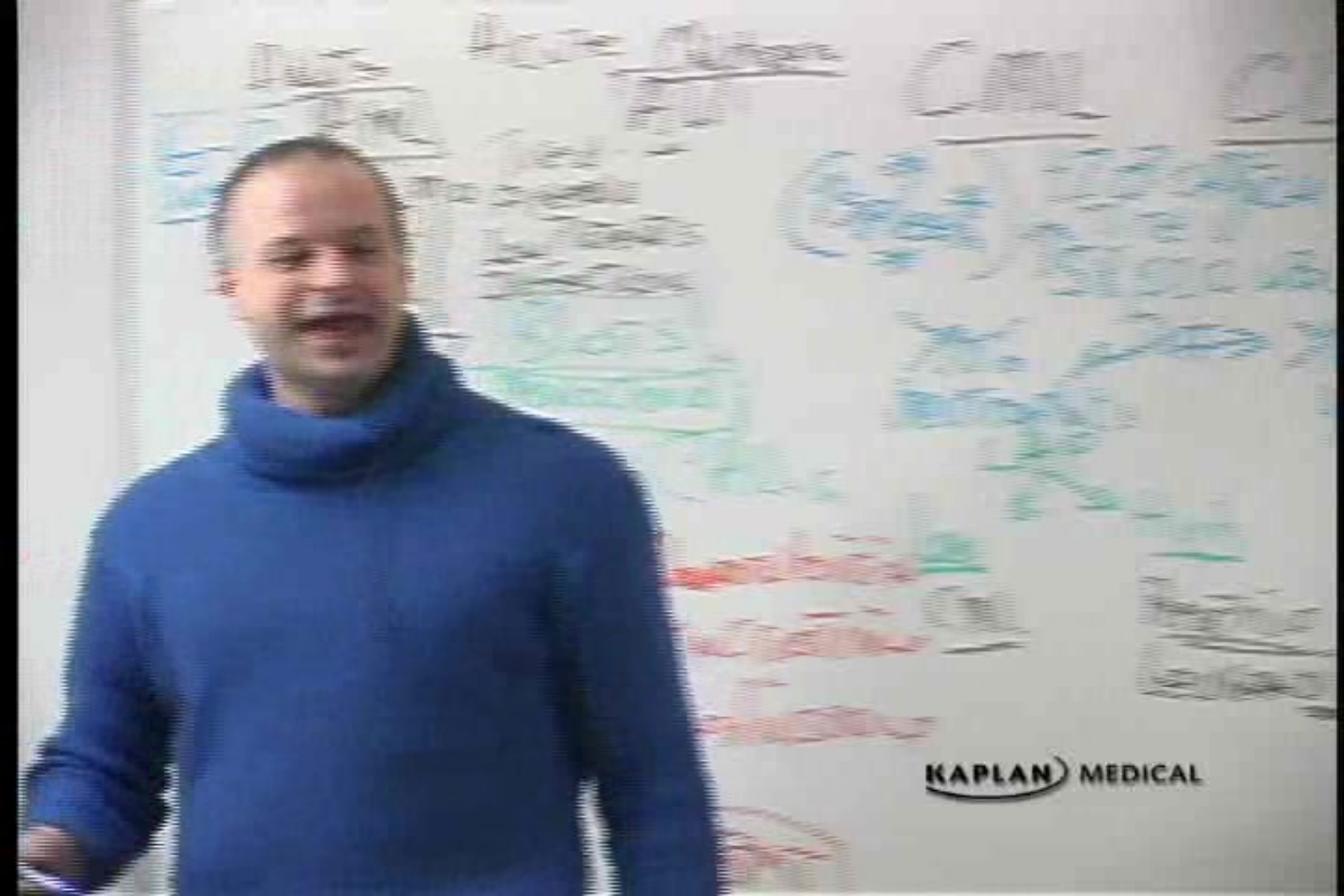
LAP

>90%
lymphs

High

Reactive
Leukemoid

0 - ↑ WBC
1 - ⊕ nodes
2 - spleen
3 - anemia
4 - ↓ platelets
Coarctation
Steroids



KAPLAN MEDICAL

Adults

Acute Children
ALL

CML

CLL

6-12
w/ AML

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

(↑ spleen*)
(Abnormal)

47 ♂ office
Tire

↑ 58,000 WBC

Diff → >90%
lymph

Prophets
LAP

High

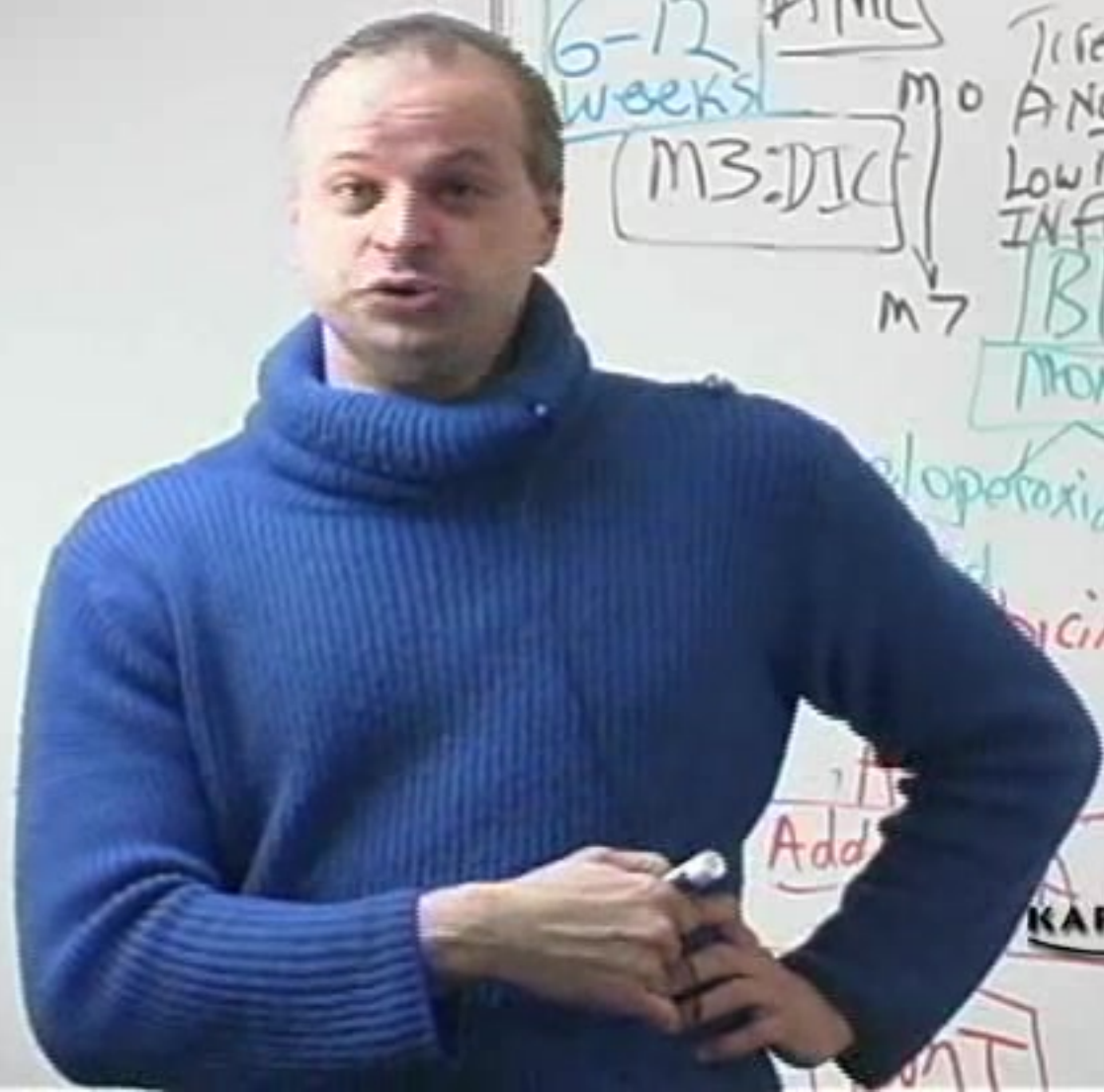
Reactive
Leukemoid

Vincristine

Prednisone

(BMT)

KAPLAN MEDICAL



Adults

6-12 weeks

AML

M3: DIC

M0

M7

Tired

Anemia

Low Platelets

Infection

Blasts

Monoclonal

Myeloperoxidase

Daunorubicin

Daunorubicin

Vincristine

Prednisone

Add

KAPLAN MEDICAL

BMT

Acute Children

ALL

↑ Spl

Abd Pain

Adults

Acute Children

CML

6-12 weeks AML

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

Myeloperoxidase

CALLA

bicin

Doxorubicin

Vincristine

Prednisone

BMT

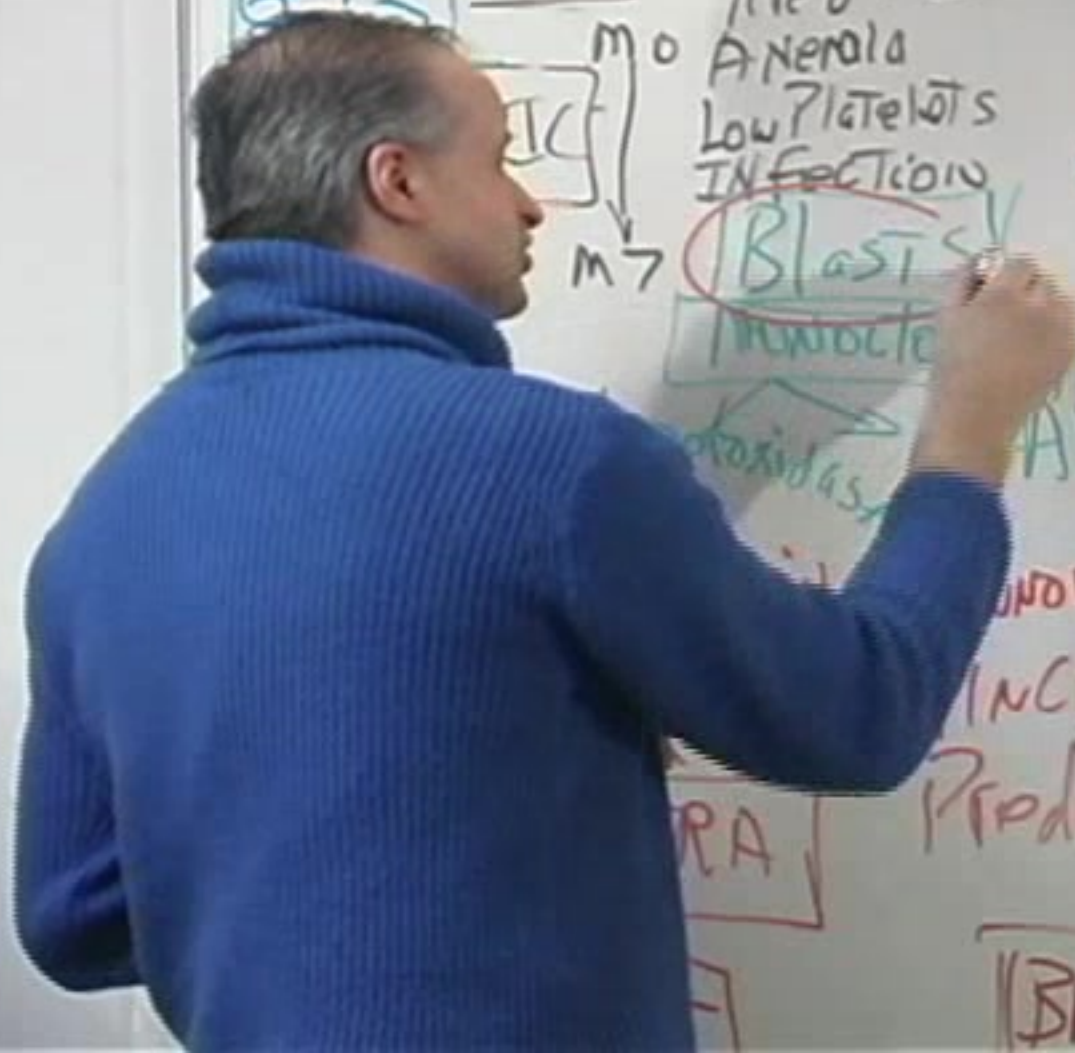
Spleen
Abdominal

47% of
Tire
58,000

79%
Neutrophils
LAP

High
Reac
Leuk

KAPLAN MEDICAL



Adults

6-12

AML

M0

IC

M7

Tired
Anemia
Low Platelets
Infection

Blasts

Monocyte

Myeloblast

Myeloblast

Myeloblast

Myeloblast

Myeloblast

Myeloblast

Myeloblast

Myeloblast

ALT

CML

(↑ spleen*)
(Abd Pain*)

47 ♂ off

Tire

↑ 58,000

Diff

>90%
neutrophils

LAP

High

Reactive
Leukocytes

All a

doxorubicin low

incristin CML

prednisone

RA

BMT

KAPLAN MEDICAL



Adults

6-12 AM

m0
m7

Tired
Anemia
Low Platelets
Infection

Blasts

Immunoblastic

Myeloperoxidase
Myeloblast

Doxorubicin

+
Ara

ALL

~~20%~~
year

CML

(↑ spleen*)
(Abd Pain*)

47 ♂ off
Tire V
↑ 58,000

79%
neutrophils
LAP

High

Reactive
Leuk

Doxorubicin

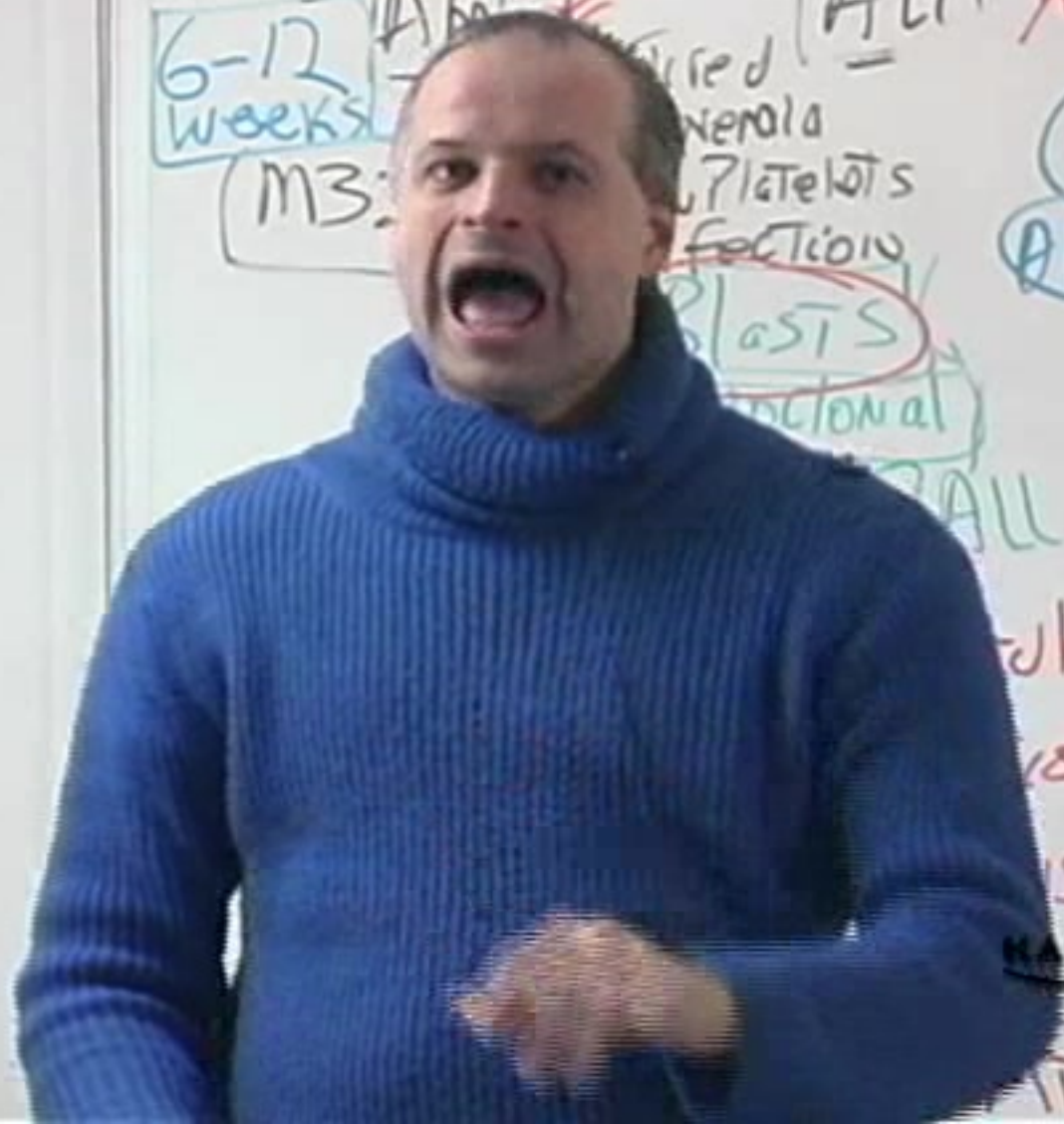
Low

Vincristine

CML

Prednisone

KAPLAN MEDICAL



Adults

6-12
weeks

M3:

ALL

neutrophils
platelets
function

Blasts

functional

ALL

tubicin

CML

neutrophils

LAP

tubicin

CML

Kaplan Medical

~~20%~~ year CML

(↑ spleen*)
Abundant

47
↑ 58

neutrophils

LAP

tubicin

CML

neutrophils

LAP

tubicin

CML

Kaplan Medical

Adults
5-12 weeks
M3: DIC
Tired
Anemia
Low Platelets
INF
M7
ALL a
Tadachin
CML
Dx
Phlebo

~~ALT~~ year CML CLL

(↑ spleen*)
(b12 pair)

47 ♂ office
Tire
↑ 58,000 WBC
Diff → >90% lymphs
>90% neutrophils
LAP
Low
High
Reactive
Leukemoid

KAPLAN MEDICAL

ADULTS

6-12 weeks

(M)

~~ALL~~ year CML

CLL

Tired
Anemia
Platelets
Leukocytosis

Blasts

Efficient
D WBC
F → >90
lym

Trophoblasts
LAP

High

LOW

IMMUNOSUPPRESSION

IMMUNOSUPPRESSION

IMMUNOSUPPRESSION

CML

Dx

Philadelphia

Reactive
Leukemoid

BMT

KAPLAN MEDICAL

Adults

6-12 weeks

(M3:D)

ALL

~~20%~~ year CML

Imatinib

CLL

offic
D WBC
F \Rightarrow >90%
lyn

STIS

functional

neutrophils
LAP

Hgb

Reactive
Leukemoid

Philly

KAPLAN MEDICAL

BMT

Adults

6-12 weeks

AM

n

ALL

year

~~20%~~ CML

CL

Tired
Anemia
Platelets
fection

Blasts

Imatinib
90% improvement

Efficient
DWBC

→ >90%

High

INCISTIN CML

Imatinib

Reactive
Leukemia

KAPLAN MEDICAL



ADULTS

6-12
weeks

M3: DIC

m0

m7

Tired
Anemia
Low Platelets
Infection

Blasts

Monoclonal

peroxidase

bicin

Daunorubicin

Vincristine

Pilot

KAPLAN MEDICAL

ALL

year

CML

* Imatinib
90% impro
Oral

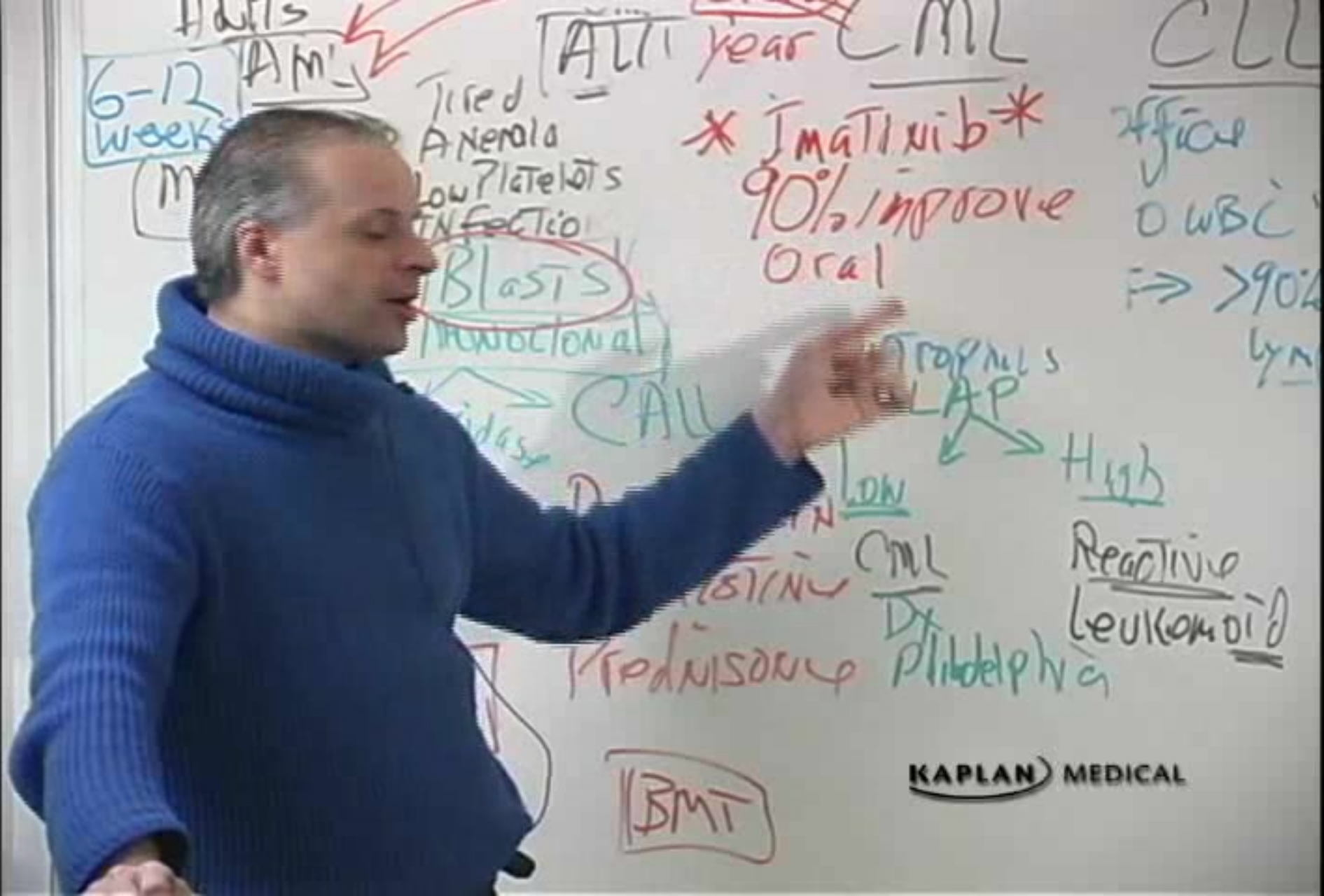
neutrophils
LAF

Low

CML

Dx

Pilot



6-12 weeks
AM

Tired
Anemia
Low Platelets
Infection
ALL year CML

* Imatinib *
90% improve
Oral

CLL
Efficient
Low WBC
F -> >90%
Lym

Blasts
Monoclonal

ALL

Trophoblasts
ALLAP

Low
CML
Dx
Kroninson
Philadelphia

High
Reactive
Leukemoid

BMT

KAPLAN MEDICAL

6-12 weeks
M3: DIC
Tired
Anemia
Low Platelets
Infection

ALL year CML

* Imatinib *
90% improve
Oral

M7
Blasts
monoclonal

- Myeloperoxidase
Auer Rod

Doxorubicin

+ Ara-C

3 Add ATRA

BMT

CALLA

Doxorubicin Low

Vincristine CML

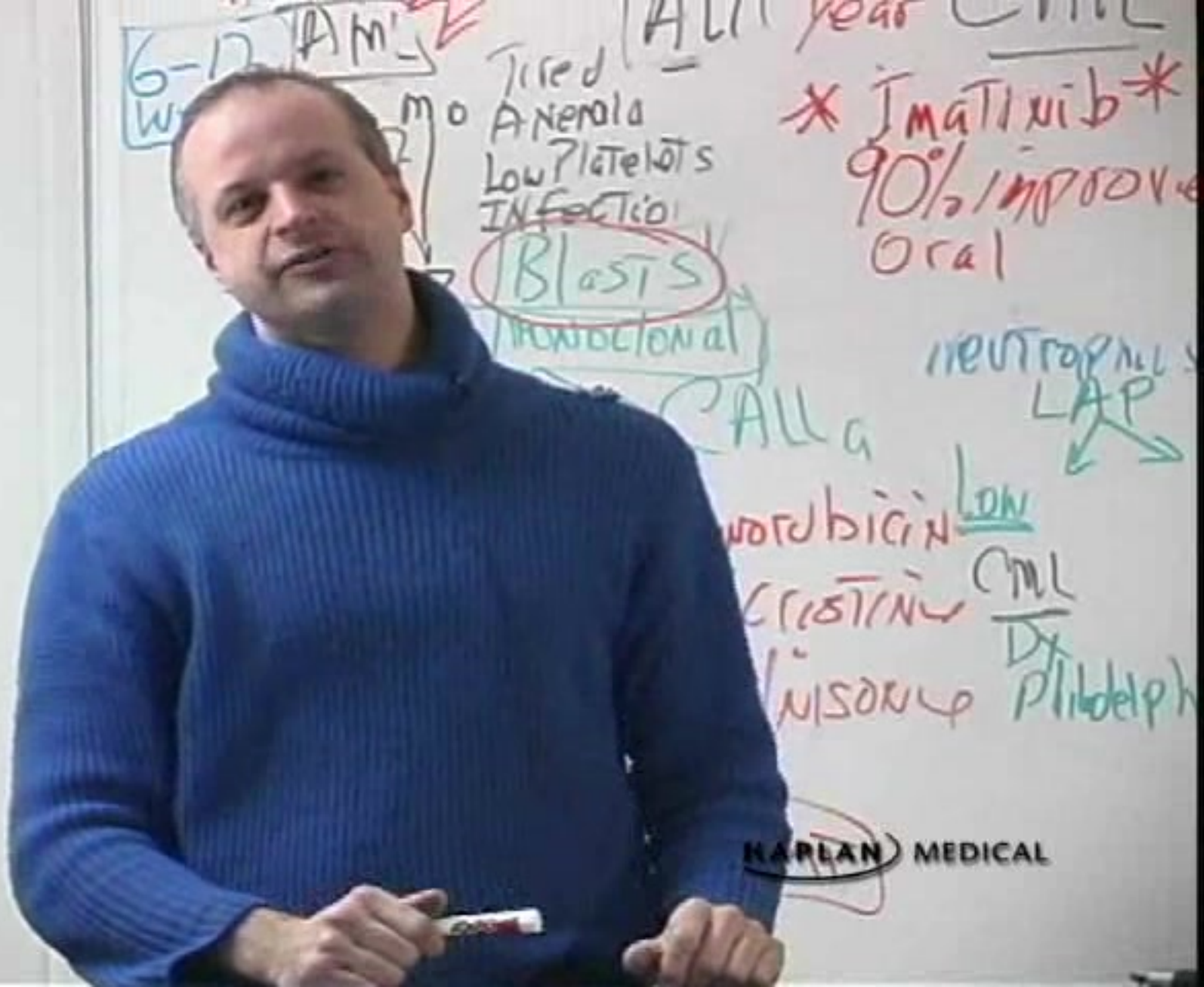
Prednisone Dx Philadelphia

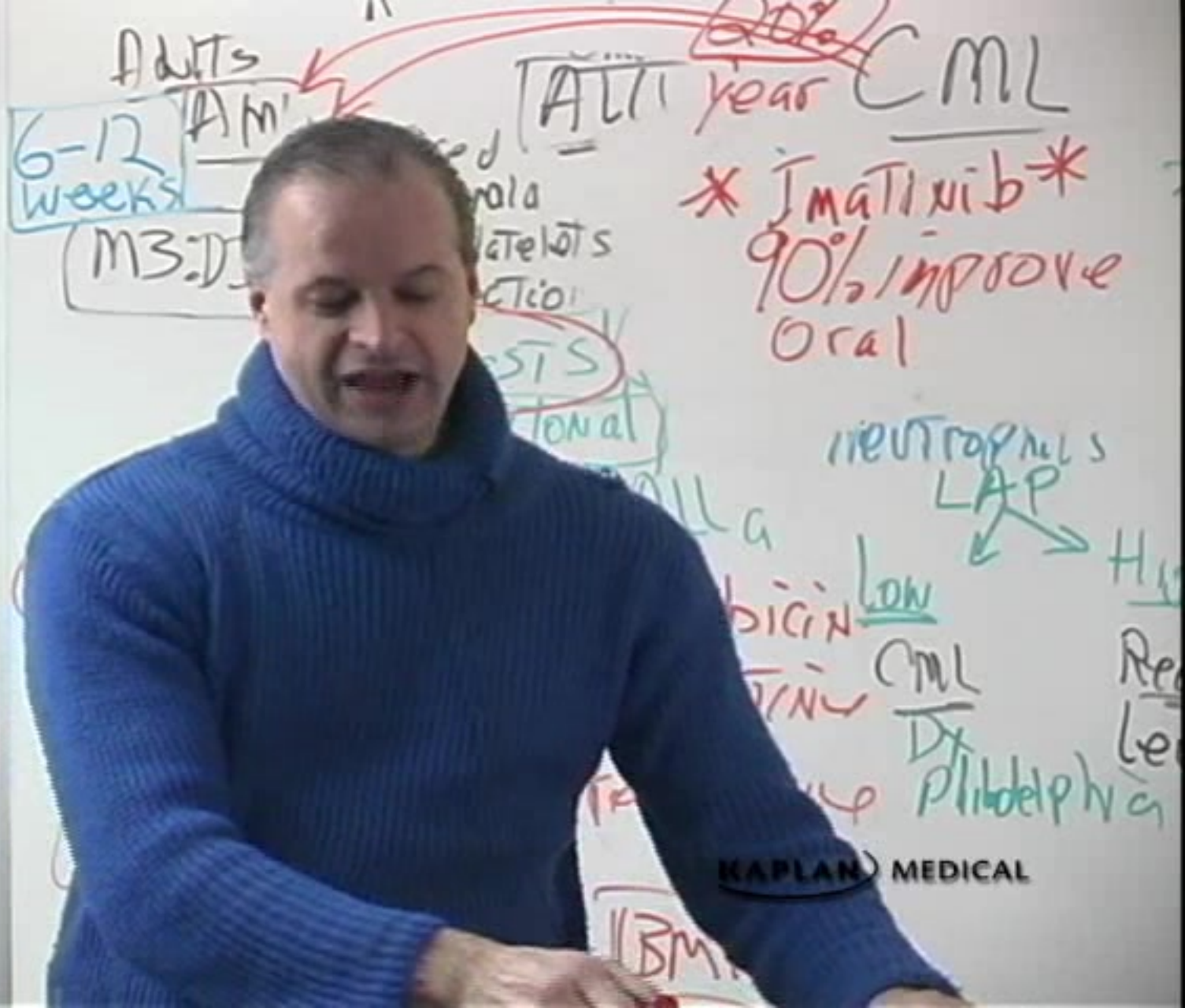
neutrophils
LAP

High
Reactive
Leukocytes

BMT

KAPLAN MEDICAL





Adults

6-12 weeks

M3: D

ALLI

~~60%~~ year CML

* Imatinib *
90% improve
Oral

neutrophils
LAP

bicin low

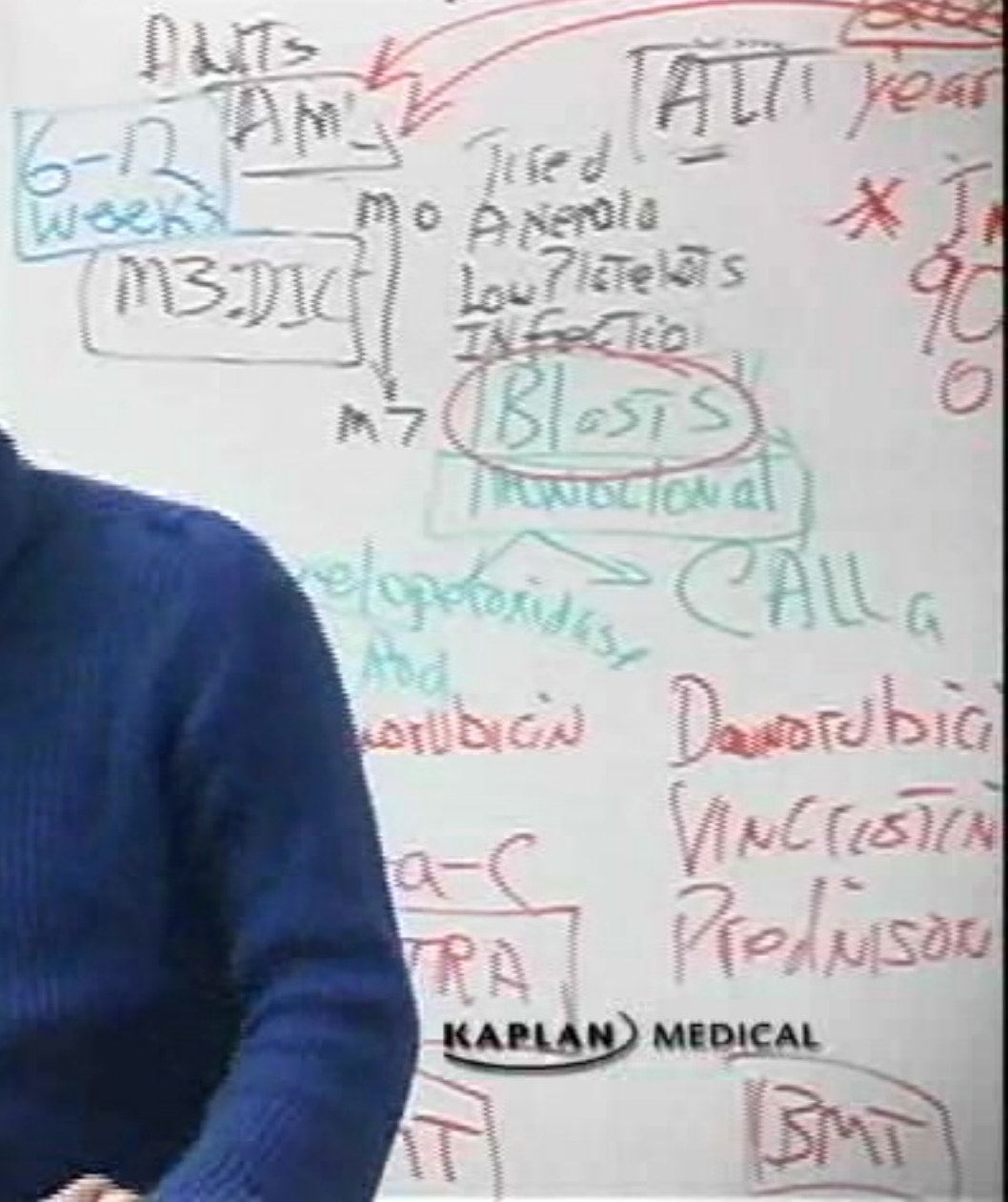
CML

Dx

Philadelphia

KAPLAN MEDICAL

IBM





ADULTS

AM

ALT

Tired

ANEMIA

Low Platelets

INFECTION

DIC

M0

M7

Blasts

MONOCLONAL

Develop peroxidase

CALL a

bicin

Daunorubicin

Vincristine

Prednisone

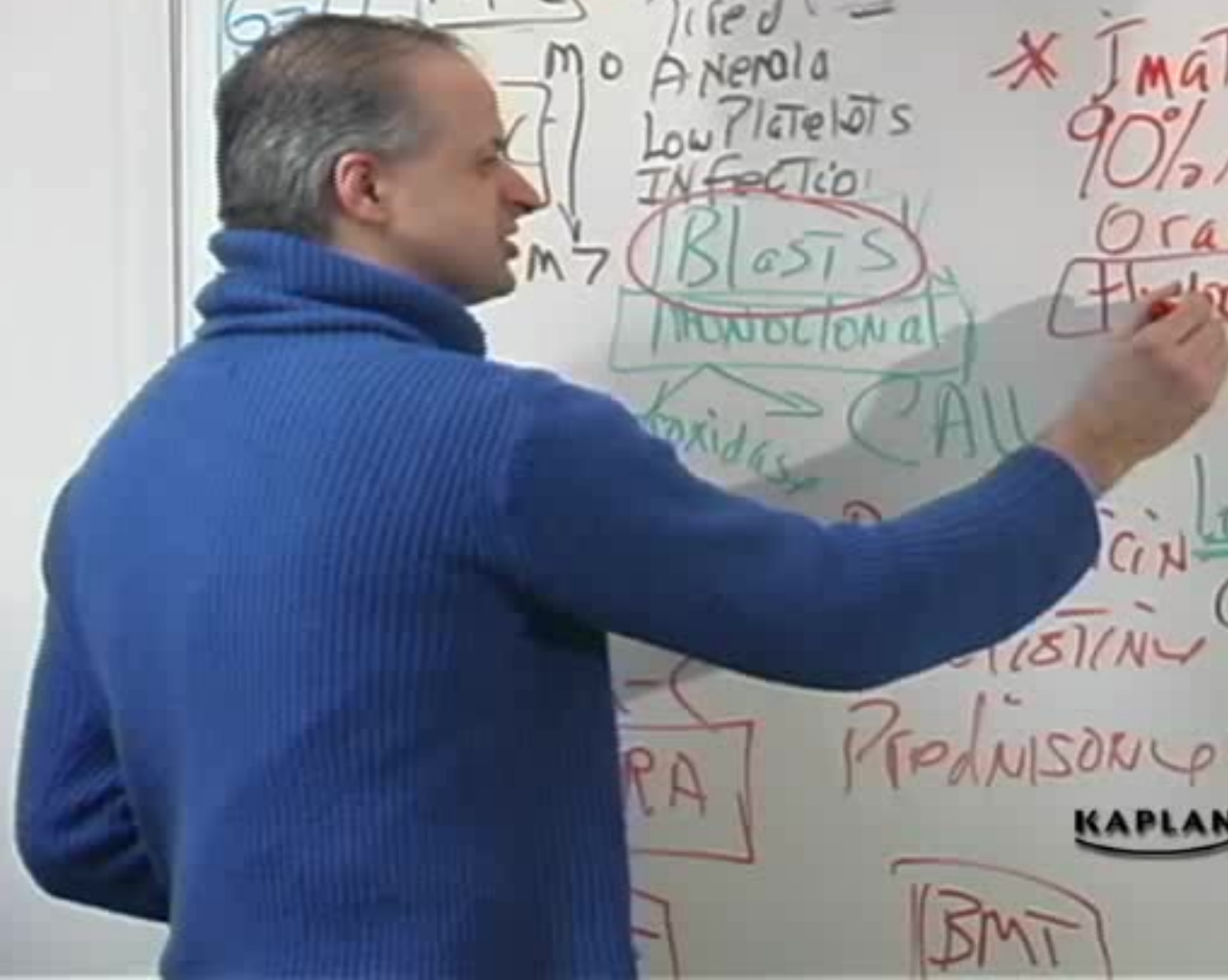
KAPLAN MEDICAL

BMT

Adults
 6-12 AM
 Tired
 Anemia
 Low Platelets
 Infection
 Blasts
 Monoclonal
 Neutrophils
 LAP
 Low
 Doxorubicin
 STIN
 CML
 Dx
 ALL
 20%
 year CML
 * Imatinib *
 90% improve
 Oral
 Hb
 Re
 Le
 1/2



Aduts
6-12 weeks
M3: DIC
mo
Tired
Anaemia
Low Platelets
INfection
m7
ALL year CML
Imatinib
Hydroxyurea
neutropenia
LAP
Doxorubicin
Ara-C
Add ATRA
BMT
Kaplan Medical



Adults

AM

ALT

year

CML

Tired
Anemia
Low Platelets
Infection

Blasts

monoclonal

oxidase

CALL

* Imatinib *

90% improve

Oral

Hydroxyurea

vitamin

LAP

High

Reactive
Leuk

Low

CML

Prednisone

Philadelphia

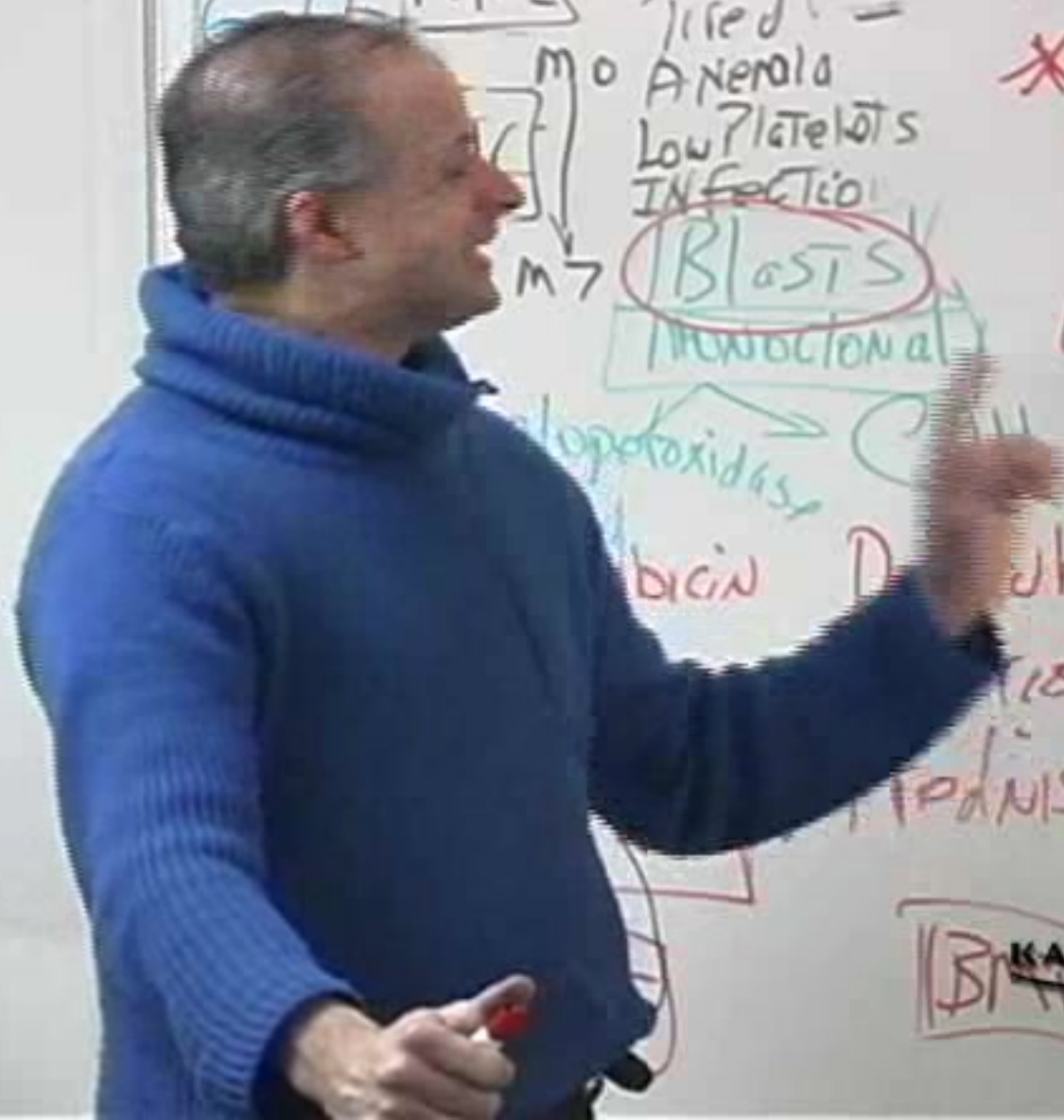
KAPLAN MEDICAL

BMT

Adults
6-12 weeks
M3:DT
Tired
mo Anemia
low Platelets
fection
lasts
functional
ALL g
ibicin low
CML
Dx
Pliidelp

~~20%~~ year CML
* Imatinib *
90% improv
Oral
Hydroxyurea
neutrophil
LAP
Karyo

KAPLAN MEDICAL



ALL year CML

* Imatinib *

90% improve

Oral

Hydroxyurea

Neutrophils

LAP

Blasts

Monoclonal

Leukotoxides

Doxorubicin

Doxorubicin Low

Flutasterone CML

Flutasterone

Philadelphia

KAPLAN MEDICAL

ADULTS

AM

EDIC

m0

m7

Tired
Anemia
Low Platelets
INFECTION

Blasts

monoclonal

ALL a

Doxorubicin

Vincristine

Prednisone

TRA

ALL

year

CML

* Imatinib *

90% improve

Oral

Hydroxyurea

neutropenia

LAP

Low

CML

Dx

Philadelphia

High

Reactive

Leukocytes

KAPLAN MEDICAL

BMT

ALT year CLL
 * JM *
 90%
 neutrophils
 LAP
 low
 Phosphatase
 Phosphatase
 Phosphatase

CLL

effusion
 ↓ WBC
 ⇒ >90%
 lymph

- 0 - ↑ WBC
 - 1 - ⊕ Nodes
 - 2 - spleen
 - 3 - Anemia
 - 4 - ↓ platelets
- Coombs
 Steroid

Adults

6-12 weeks

(M3:)



~~20%~~ year CML

* Imatinib *
90% improve

Oral
Hydroxyurea
neutropenia
LAP

CLL

efficacy
OWBC
=> >90%
lyn

CALLA

Doxorubicin low
Vincristine CML
Prednisone Dx
Philadelphia

High
Reactive
Leukemoid

Adults
6-12 weeks
M3: DIC

ALL

~~20%~~ year CML

* Imatinib *
90% improve

Oral

Hydroxyurea
neutropenia

LAP

Low

High

CML

Reactive
Leukemia

Philadelphia

KAPLAN MEDICAL

Adults
6-12 weeks
AM
(M3:D)

Tired
Nervous
Platelets
Reaction
SIS
tonal

~~Extra~~ year CML

* Imatinib *

90% improve

Oral

Hydroxyurea

neutrophils

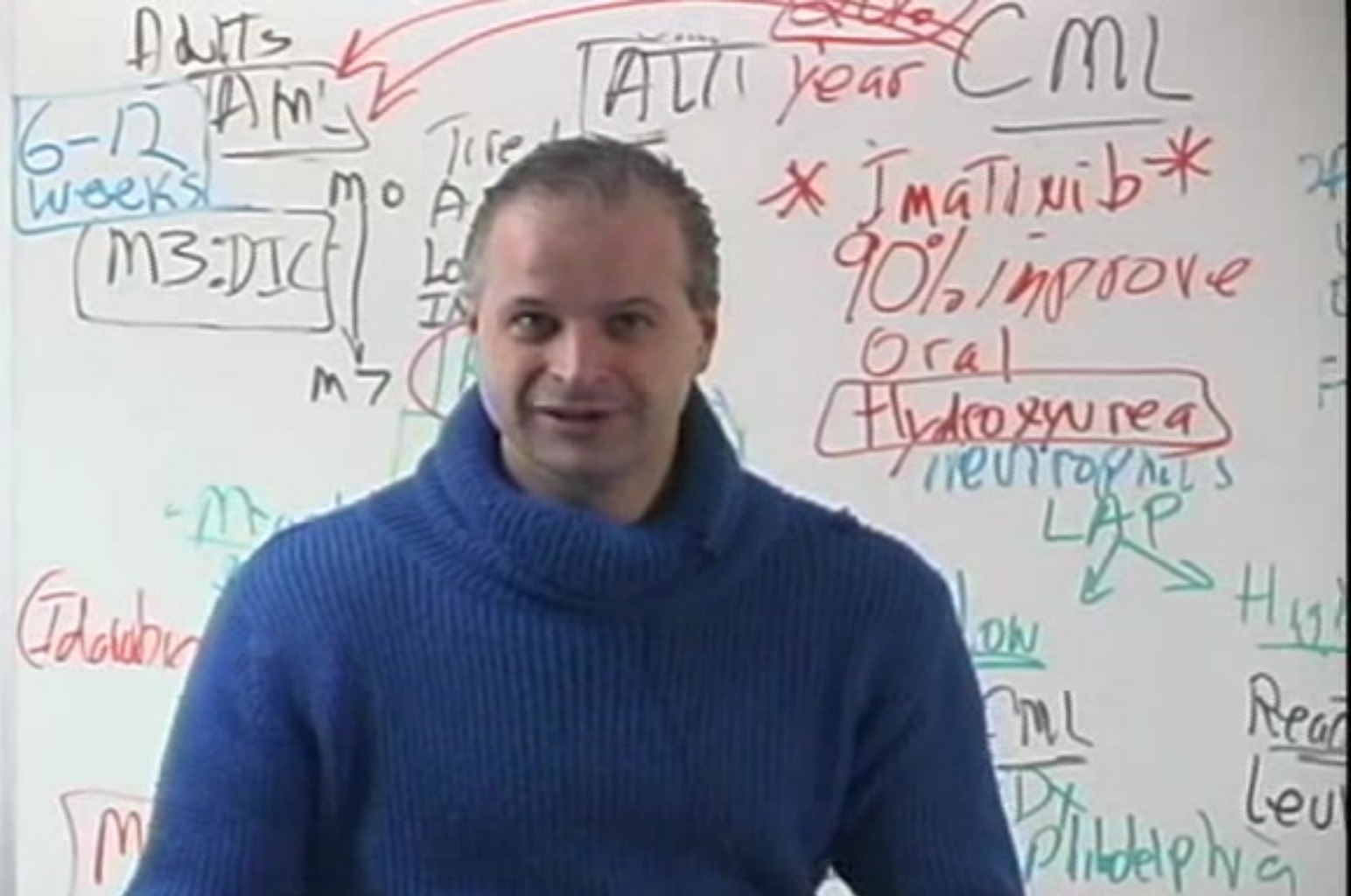
LAP

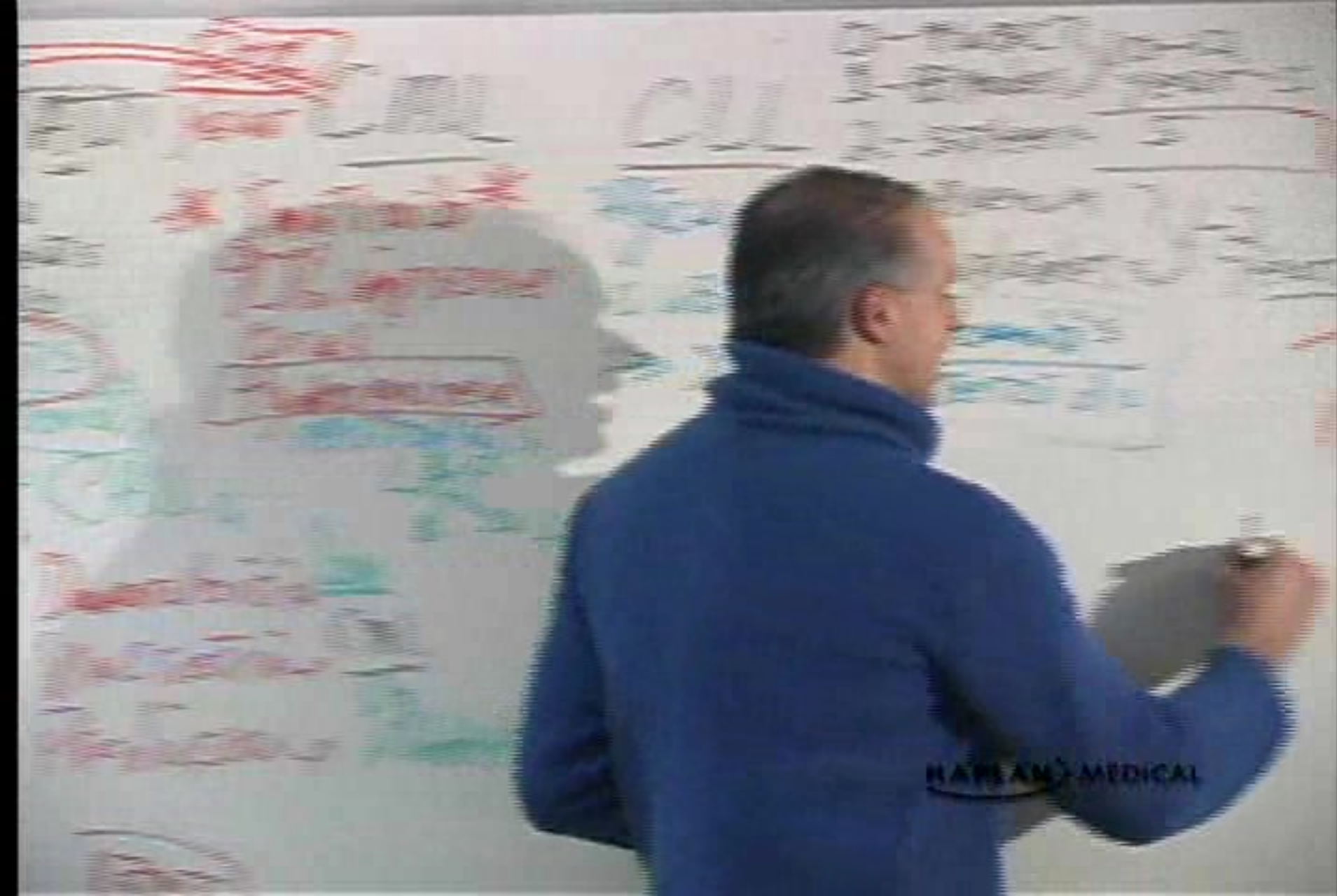
Low

High

Reactive
Leukemia

Phosphatase





~~20%~~
1 year CML

CLL

- 0 - ↑ WBC } 10-12 years
- 1 - ⊕ Nodes } 5
- 2 - spleen } 1-2 years
- 3 - Anemia }
- 4 - ↓ platelets }

* Imatinib *

90% improve

Oral

Hydroxyurea
neutrophils

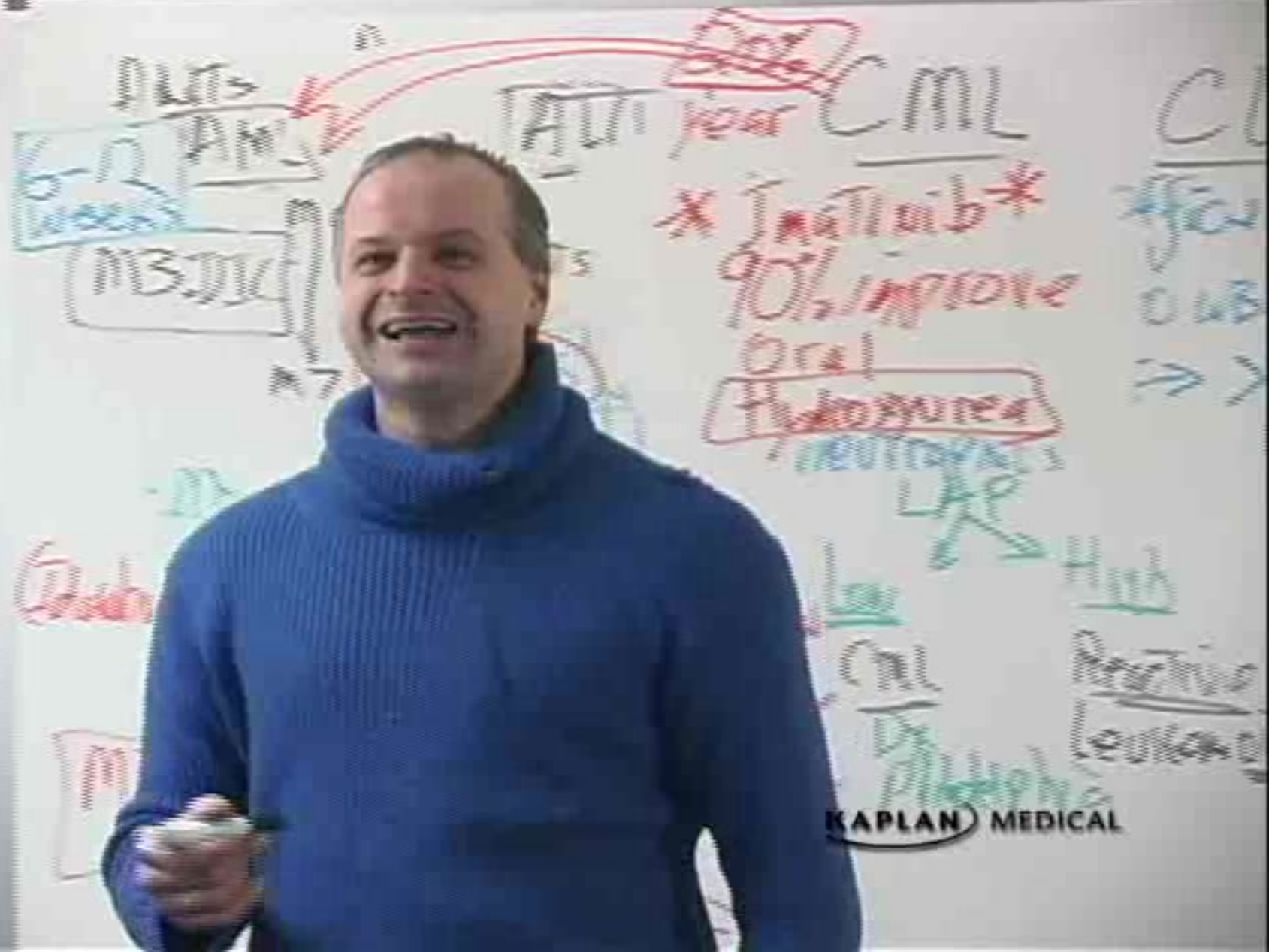
90%
lymphs

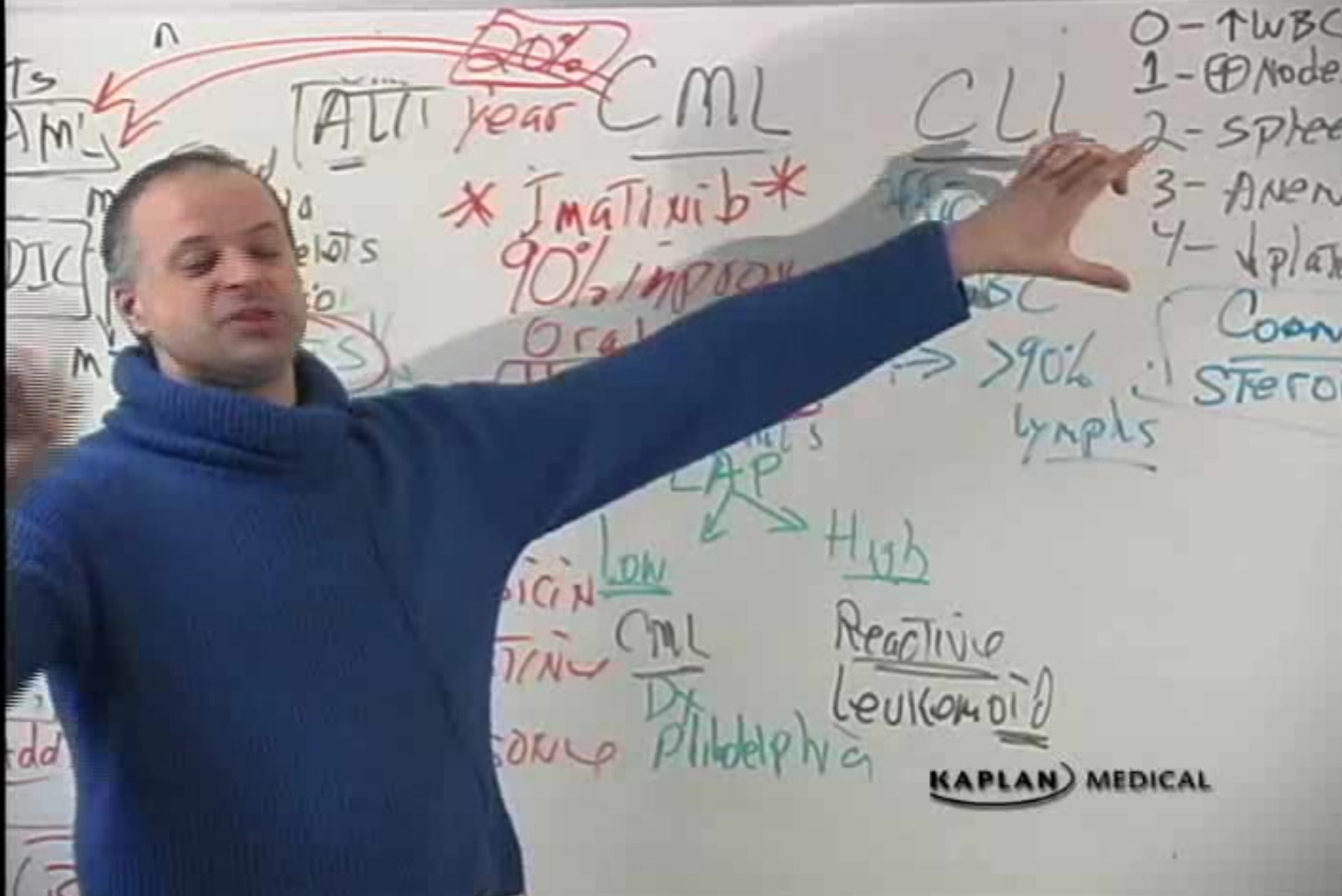
Coanb's
Steroids

Allo < S

AUTO SC

HAPLAN MEDICAL







AML
K-12 AM
M3/IV
A7
Blasts
Transfused
ALL
Doxorubicin
Vincristine
Protoposin
Trim

ALL
A7
Blasts
Transfused
ALL
Doxorubicin
Vincristine
Protoposin
Trim

CML
near CML
* Imatinib *
90% improve
Oral
Hydroxyurea
neutropenia
LAP
Hub
Reactive
Leukemia

CLL
* Ibrutinib *
90% improve
Oral
Hydroxyurea
neutropenia
LAP
Hub
Reactive
Leukemia

AML
K-12 AM
M3/IV
A7
Blasts
Transfused
ALL
Doxorubicin
Vincristine
Protoposin
Trim

ALL
A7
Blasts
Transfused
ALL
Doxorubicin
Vincristine
Protoposin
Trim

CML
near CML
* Imatinib *
90% improve
Oral
Hydroxyurea
neutropenia
LAP
Hub
Reactive
Leukemia

CLL
* Ibrutinib *
90% improve
Oral
Hydroxyurea
neutropenia
LAP
Hub
Reactive
Leukemia

Adults

6-17

AM

n

ALT

year

~~20%~~ CML

Tired

Anemia

Low Platelets

Infection

Blasts

monoclonal

peroxidase

CALLA

icin

Daunorubicin

DN

CML

Dx

Philadelphia

KAPLAN

MEDICAL

IRMT

* Imatinib *

90% improve

Oral

Hydroxyurea

neutropenia

LAP

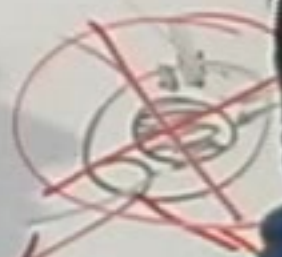
H

Re

le

Aplastic
anemia

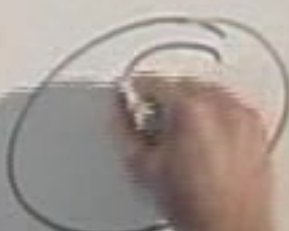
CD11
CD8



<50

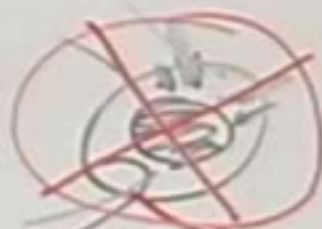
+Match

BMT



Aplastic
Neutropenia

WBC



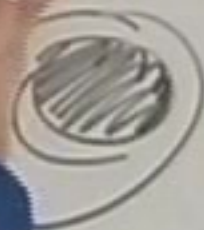
<500
>5000
No match

* Cyclosporine
* Anti Thymocyte
Globulin

KAPLAN MEDICAL

Aplastic
anemia

71



KAPLAN MEDICAL

Aplastic
anemia

Plasma

CD11
CD8



<50
+ Match

BMT

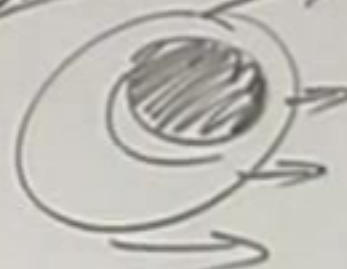
>50
No match

* Cyclosporine
+ Anti Thymocyte
Globulin

KAPLAN MEDICAL

Aplastic
anemia

Plasma Cell \rightarrow Ig G, Ig A \rightarrow



CD11
 \rightarrow CD8



Acute
NHL

Plasma Cell I_s 6, $I_s A \rightarrow$

CD11
CD20



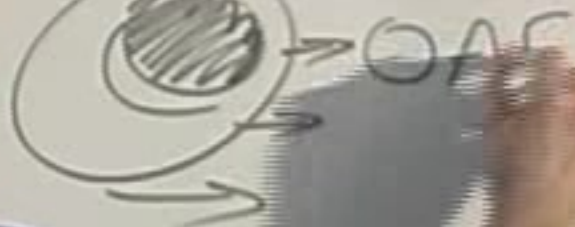
<50

+Match

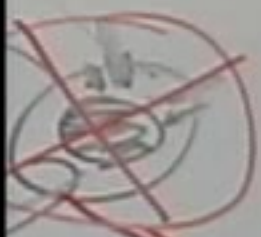
BMT

Plasma $I_g G, I_s A \rightarrow M''''$

Plasma Cell $\rightarrow I_g G, I_g A \rightarrow$ "M-Spike"
STEP



ASTIC
anti G



55066

No match

* Cyclosporine

* Anti Thymocyte

Globulin

Plasma T_H 6, I₁ A → "m-Spike"
STEP

AF → Bones ↑

KAPLAN MEDICAL

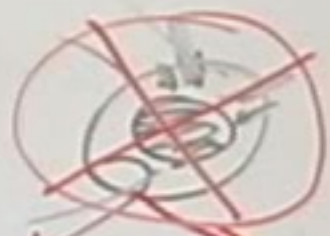


Aplastic
Anemia

Plasma Cell

WBC

PLA



5506
no match

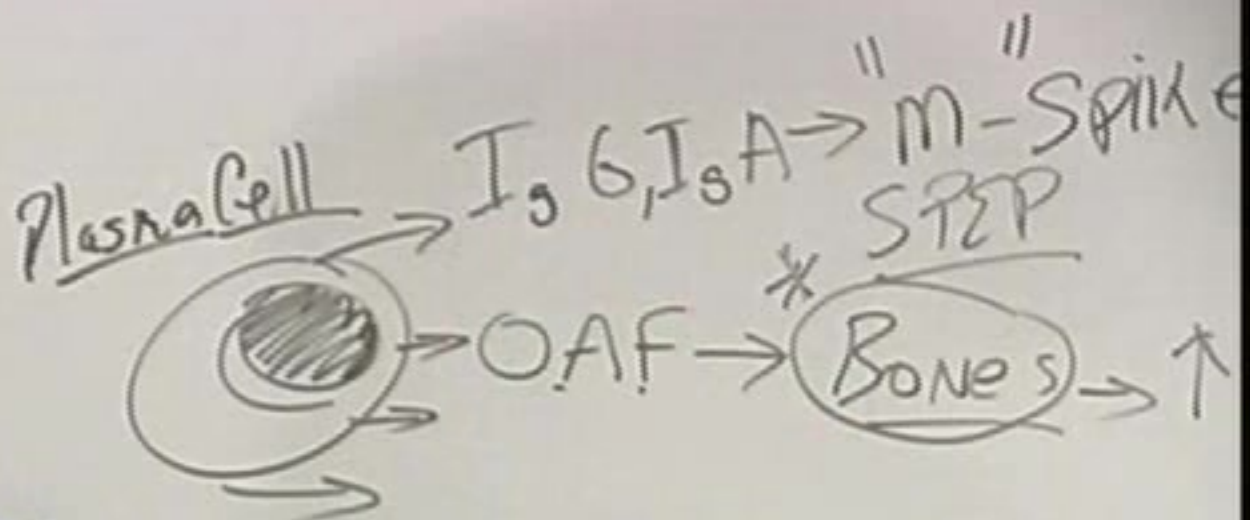
Cyclosporine

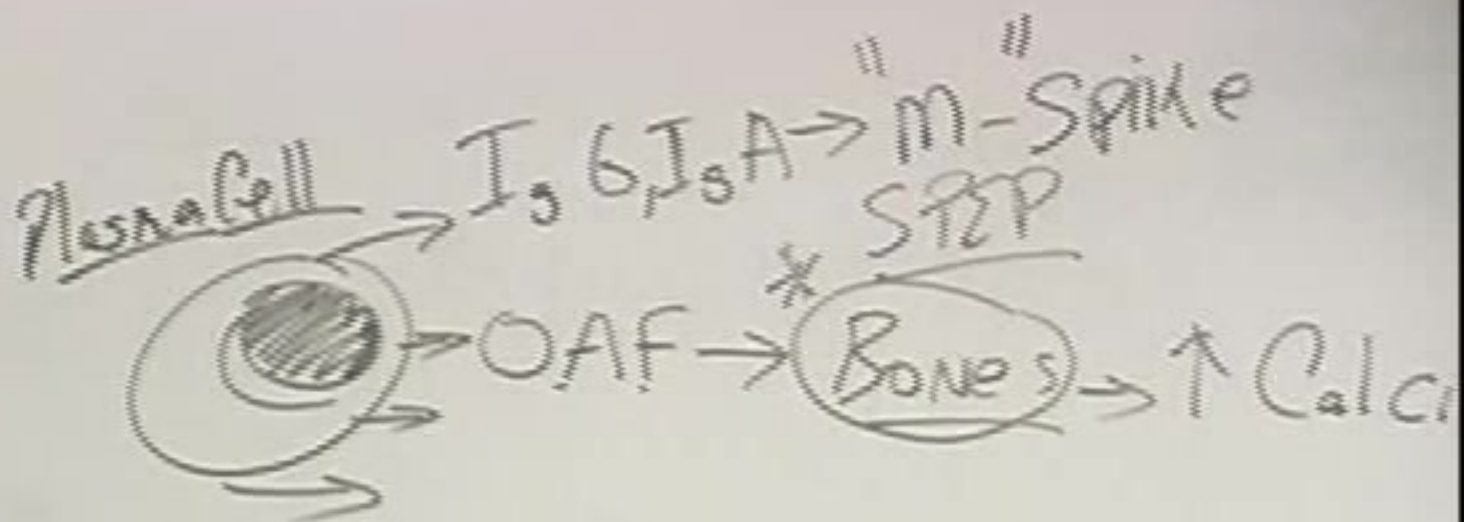
Thymocyte

Stimulation

KAPLAN MEDICAL

Aplastic
Anemia





Aplastic
anemia

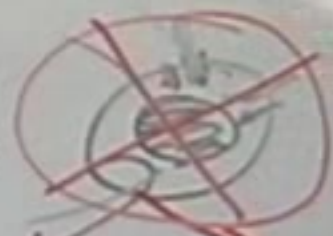
Plasma Cell → Ig G, Ig A
OAF →

CD11
CD8

Relat, <50
Allo
+ Match
BMT

Aplastic
Anemia

CD11
CD8



<50

fMatch

BMT

>50

No M

* Cyc

* AD

Cell

I, G, I, A → "M-"
STZ

OAF → * Bone

Bence Jones

Aplastic
Neutrophils



50

>50

No match

* Cyclophosphamide

Gy 10

globulin

Plasma Cell → Ig G, Ig A
OAF →
Bence Jones

Adjuvant
Allogeneic

AlloCell



5506
No match

Cyclosporine
Anti Thymocyte

Glubatin

KAPLAN MEDICAL

Aplastic
Neutrophils

Red

WBC
T → CD

Platelet

Plasma Cell → I
→ B
↑ Uric

500
match

Globulin

KAPLAN MEDICAL

Aplastic
Anemia



Plasma Cell → Ig G, A
→ OAF
→ Bence
→ ↑ uric Acid

Match
* Cyclosporine
+ Anti Thymocyte
Globulin

KAPLAN MEDICAL

$I_2, G, I_2 A \rightarrow$ "M-Spike"
* STEP

$\rightarrow OAF \rightarrow$ \uparrow Calcium

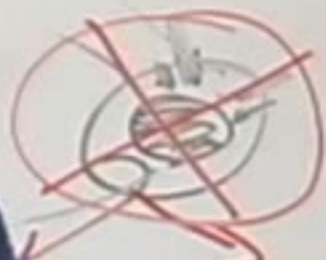
Protein \rightarrow Renal

Aplastic
Anemia

Plasma

WBC

Platelets



5500
match

closporine

thymocyte

KAPLAN MEDICAL

Aplastic

Anemia

CD11
→ CD8

Plasma Cell → Ig G, Ig A → "M"
ST
*
OAF → (BON)
Bence Jones P
↑ Uric Acid

Aplastic

anemia

PlasmaCell

WBC

Platelet,
Allo

550G

Anti Thymocyte
Globulin

RAPLAN MEDICAL

Aplastic
Anemia

>10%
Plasma Cell

Ig G, Ig A → "M"
ST

OAF → * (BON)

Bence Jones Protein

↑ Uric Acid

Positive
Mott
tint

KAPLAN MEDICAL

Aplastic
Anemia

>10%

Plasma Cell

IgG, IgA → "M-SPK"



OAF → * Bone

Bence Jones Protein

Uric Acid



SSD

Anti Thymocyte

Globulin

> 10%
 Renal Cell → IgG, IgA → m-Spike
 → S2P
 → OAF → Bone → ↑ Calc
 → Bence Jones Protein → Renal
 ↑ uric Acid

10%
Plasma

I_g G, I_g A → "M-Spike"
STEP

Kidney

AF → Bones → ↑ Calcium

Jones Protein → Renal
Acid

RBC

Aplastic
neutrophils

> 10%
Plasma Cell

WBC

Plasma



> 5000

no match

lospro/IV

lymphocyte

KAPLAN MEDICAL

Aplastic
Anemia

>10% Myeloma
Plasma Cell

IgG, IgA → "M-S"
STEP

→ OAF → * Bone
e.g. Jones Prote
uric Acid

KAPLAN MEDICAL

Aplastic
Anemia

>10% Myeloma
Plasma Cell

IgG IgA

"M"
SECRET

Bone

Bence Jones Protein

Uric Acid

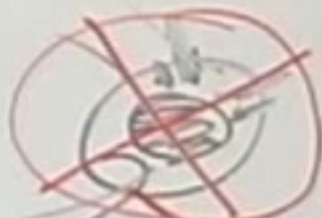
KAPLAN MEDICAL

R₂D

Aplastic
Neut G

> 10%
Plasma

CD11
→ CD8 →



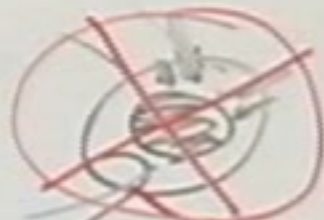
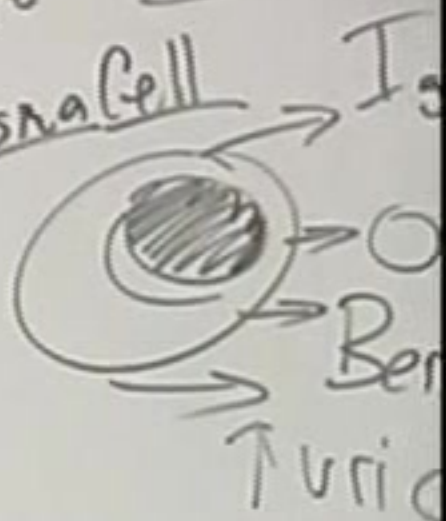
CD8

> 500
no match

* Cyclosporine
* Anti Thymocyte
KAPLAN MEDICAL
Globulin

Aplastic
Neutrophils

Myeloma
>10%
Plasma Cell



>50%
No match

* Cyclosporine
* Anti Thymocyte
Globulin

KAPLAN MEDICAL

Myeloma

> 10%

plasma cell

IgG, IgA, IgM → "M-Spike"
* STEP



OAF

Bones

↑ Calcium

Bence Jones Protein → Renal

↑ Uric Acid

Kidney

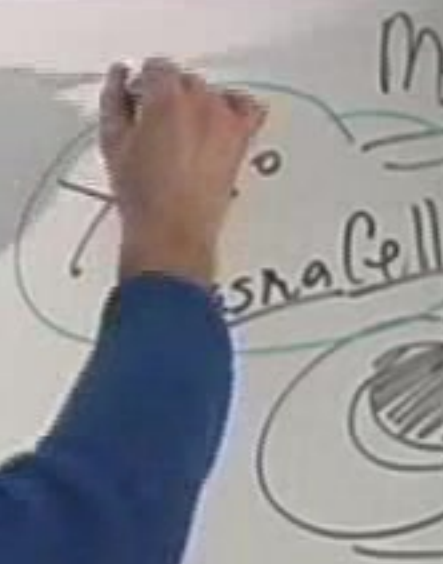


Aplastic
Anemia

RBC

WBC

Platelet
Allo



Leukopenia
Thrombocytopenia

KAPLAN MEDICAL

Aplastic
Anemia

CD11
→ CD8

* Myeloma
710%
Plasma Cell

IgG, IgA → "M"
Sp

→ OAF → * (Bo)
Jones P

Uric Acid

Ey 1/10
N-

KAPLAN MEDICAL

Myeloma

710%

$I\gamma 6I\gamma A$

M-Spike

SDP

OAF

ones

$\uparrow Ca$

Bence Jones

Protein \rightarrow Ren

STIC
ni 9

Myeloma

10%
plasma cell

plasma cell

$I\gamma 6, I\gamma A \rightarrow$ "M-Spike"
STEP



OAF

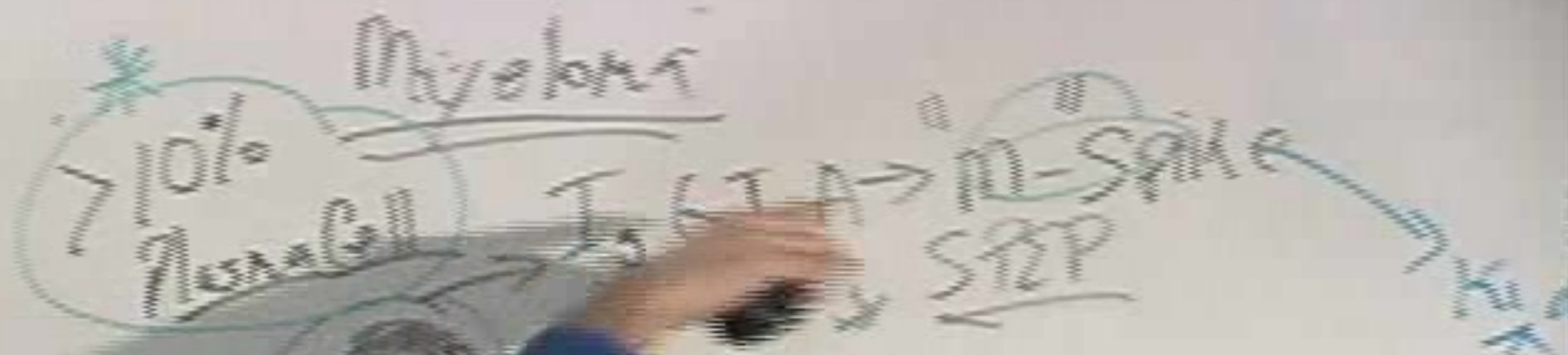
Bones

\uparrow Ca

Bence Jones Protein

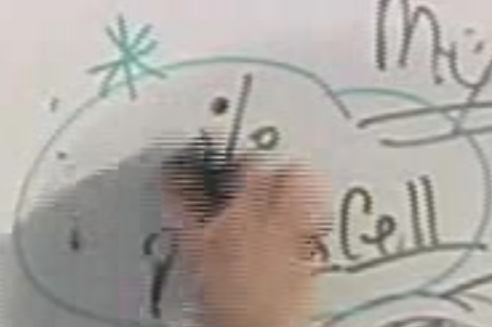
Protein \rightarrow Re

TURIC



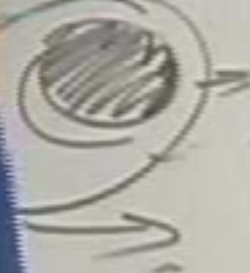
Aplastic
anemia

Myeloma



Cell

$I_0, 6, I_0 A \rightarrow$ "M-Spike"
STEP



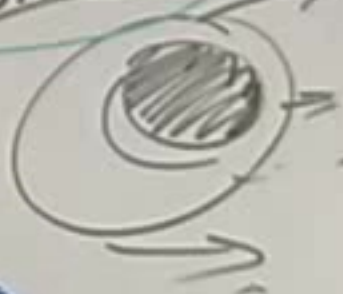
5/11/14
6/1/14
N-

Aplastic
Anemia

CD11
CD8

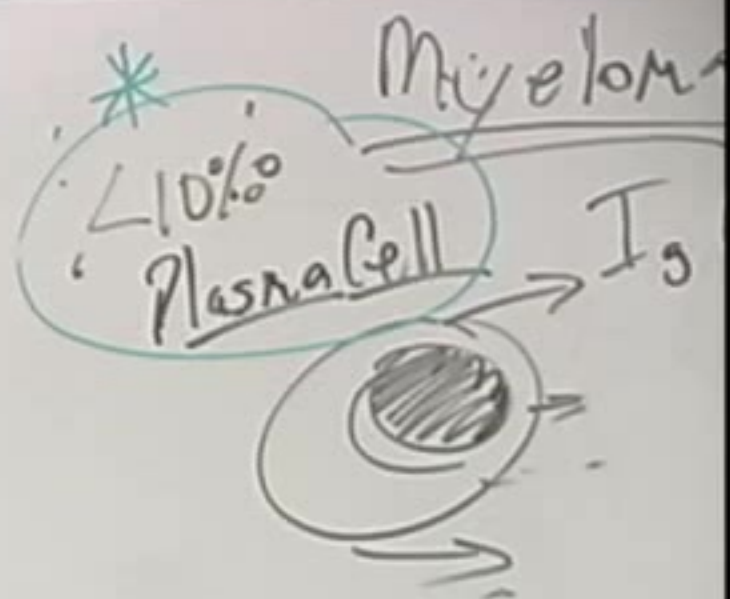
Myeloma
*
<10%
Plasma Cell

IgG, IgA → "M"
SP2



CD11c
CD138
CD19
CD20
CD22
CD24
CD26
CD27
CD28
CD29
CD30
CD31
CD32
CD33
CD34
CD35
CD36
CD37
CD38
CD39
CD40
CD41
CD42
CD43
CD44
CD45
CD46
CD47
CD48
CD49
CD50
CD51
CD52
CD53
CD54
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CD57
CD58
CD59
CD60
CD61
CD62
CD63
CD64
CD65
CD66
CD67
CD68
CD69
CD70
CD71
CD72
CD73
CD74
CD75
CD76
CD77
CD78
CD79
CD80
CD81
CD82
CD83
CD84
CD85
CD86
CD87
CD88
CD89
CD90
CD91
CD92
CD93
CD94
CD95
CD96
CD97
CD98
CD99
CD100

Aplastic
Marrow



WBC

Plate



5500
match

closporine
Thymocyte
butin

KAPLAN MEDICAL

RBC

Aplastic
Anemia

WBC

Platelet



*
◁ 10%
Plasma

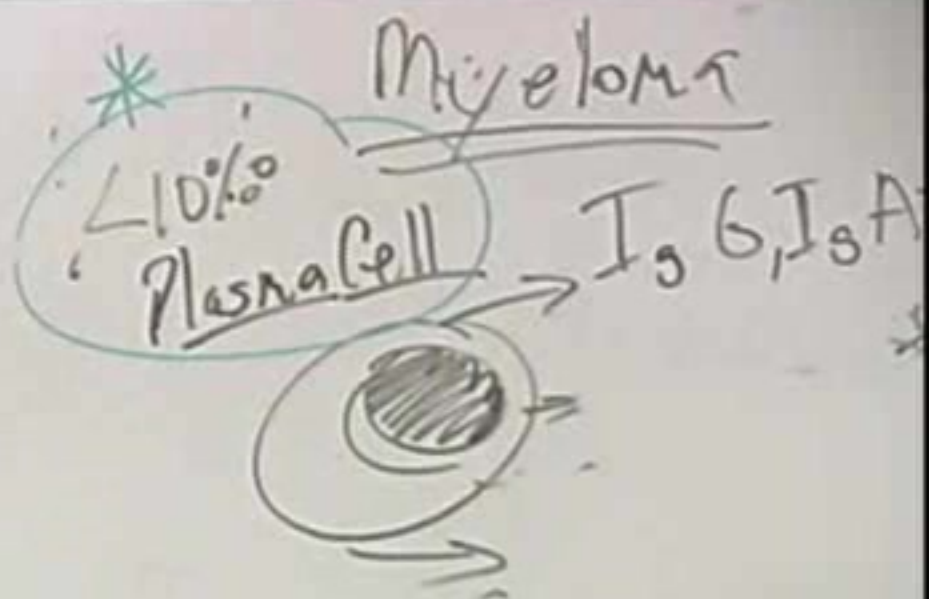
5000

osporine

Thymocyte

KAPLAN MEDICAL

Aplastic
Anemia



CD11
CD8

Allo
 $<50\%$
Match
BMT

Myeloma

*
40%
Plasma Cell



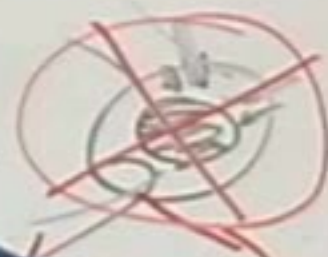
IsA → "M-Spike"
STEP

MGUS
NOR

50%
match

cyclosporine
thymocyte
globulin

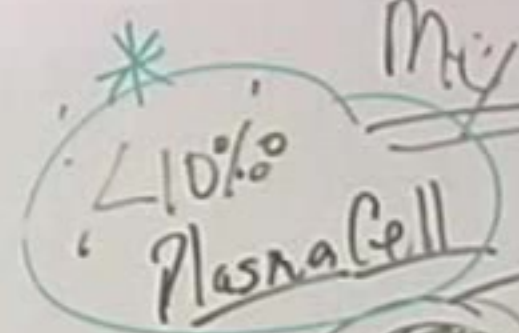
Aplastic
anemia



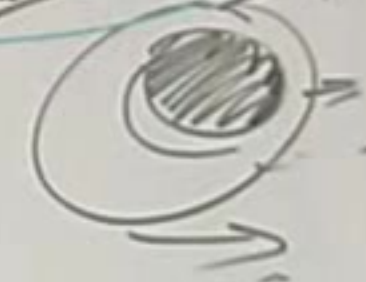
500
match

closporine
thymocyte
globulin

Myeloma



IgG



Acute
Myeloid

Myeloid

Leukemia

Cell

$I_0, 6, I_0 A \rightarrow$



< 50

> 50

+Moln

No Moln

BMT

* Cycle
+ Moln

KAPLAN MEDICAL

Myeloma

*
◁ 10%
Plasma

IgG, IgA → "M-Spike"
STEP

MGUS 1-2%

5060
match

Cyclosporine
Thymoglobulin
Globulin

Red

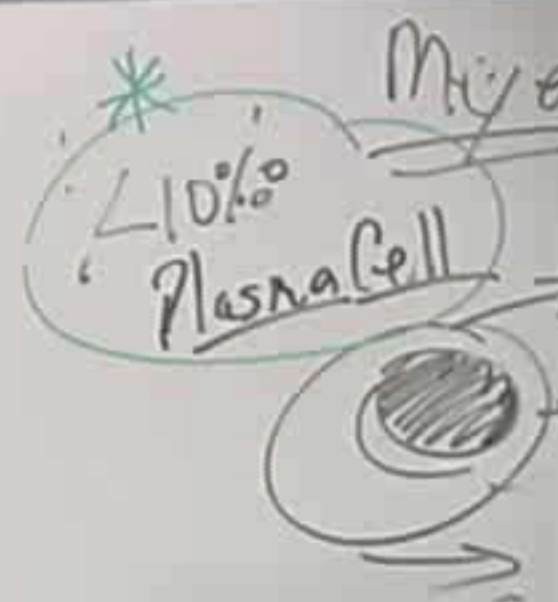
Aplastic
Anemia

WBC \rightarrow CD11 \rightarrow CDO

Platelet
Allo

< 5%
match

positive
immune



Aplastic
anemia

Myeloma
*
◊ $<10\%$
Plasma Cell

$I\gamma 6, I\gamma A \rightarrow$ "M-Spin"
STEP

$MGUS \rightarrow$
NORx

<70

Auto
Stomach cell

Aplastic
anemia

CD11
CD8



>50%

no match

* Cyclosporine

* Anti Thymocyte

Silvestrol

KAPLAN MEDICAL

Aplastic
anemia

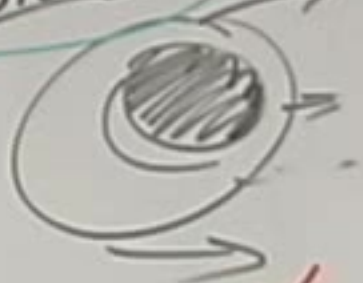
WBC → CD11
→ CD3

Platelet
Allo

>500

of/nu
myt
ulin

*
Myeloma
<10%
Plasma Cell → IgG



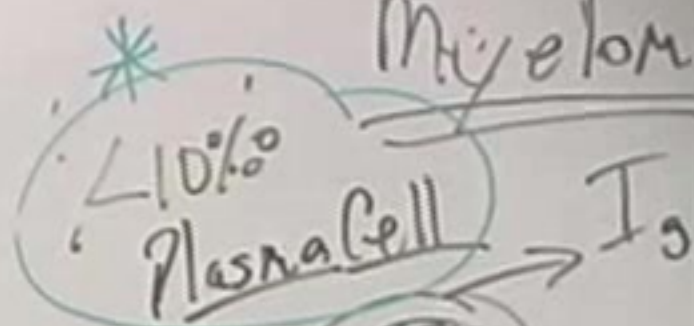
<70

Auto
Stomach

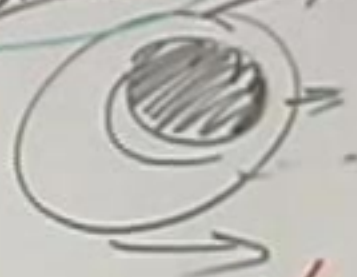
KAPLAN MEDICAL

Myeloma

Aplastic
Neutrophils



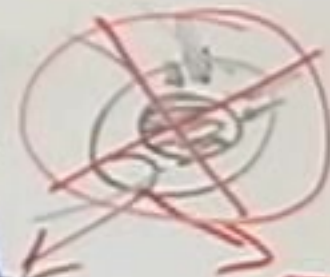
Ig



<70

Auto
Stomach
Cell

KAPLAN MEDICAL



>50%
match

closporine
Thymocyte
inhibitor

Red

WBC

Platelet

Aplastic
Anemia

Myeloma
Cell

$I_0, I_0 A \rightarrow$ "M-SPE"

NG
N

CD8

<50

+Match

BMT

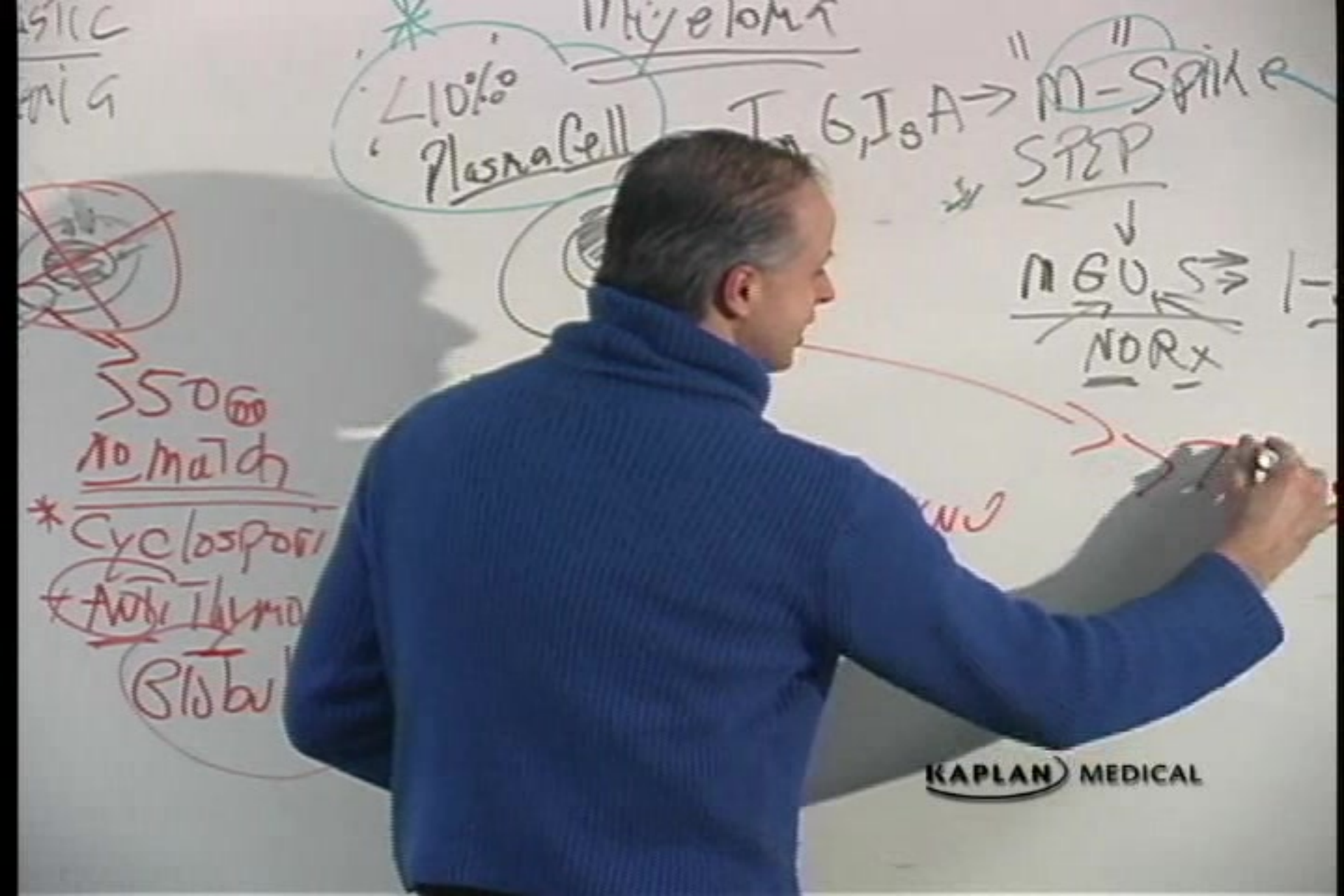
>50

10

*C

Yincus
A

KAPLAN MEDICAL



ASIC
m19

410%
Plasma Cell

Myeloma

T6, I3A → "M-Spike"
STEP
↓
MGUS → 1-
NORx

550m
No match

* Cyclosporin
* Anti Thymoglobulin
Globo

KAPLAN MEDICAL

11 Myeloma
40% Plasma Cell

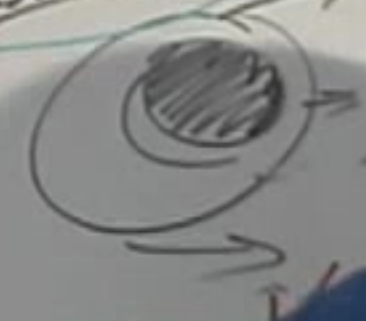
6, IgA → "M-Spike"
STEP

MGUS → 1-2% Myeloma
NO Rx

> 70

Health

0%
Plasma Cell → IgG, IgA → "M-Spike"
SFP



⇒ 1-2% Myeloma

<70
Aut
S
>70
⇒ fragile

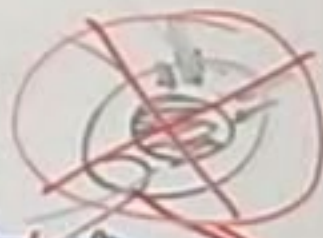
Red

Aplastic
Anemia

*
410%
Plasma

WBC

Platelets



500

with

205/114

5/10

KARLAN MEDICAL



Aplastic
Anemia

Myeloma

Mast Cell

IgG, IgE

CD11
CD8

Platelet < 50
Allo
fMatch
BMT

< 70

Vincristine
Adriamycin
Dexamethasone

RAPLAN MEDICAL

Myeloma

<10%

$I_0, I_0 A \rightarrow$

" " " " " "
M-Spike
STEP

$\frac{1160}{5} \Rightarrow$ 1-2% Myeloma
NORx

>70

Health

Fragile
Melphalan

Thalidomide

KAPLAN MEDICAL

Red

Aplastic
Nemia

Myeloma
410%
Plasma Cell → Ig

WBC

Platelet
Allo

Thymocyte
Stobulin

Stomach
= =

KAPLAN MEDICAL

Anti G

<10%

Plasma Cell

Ig G, Ig A

<70

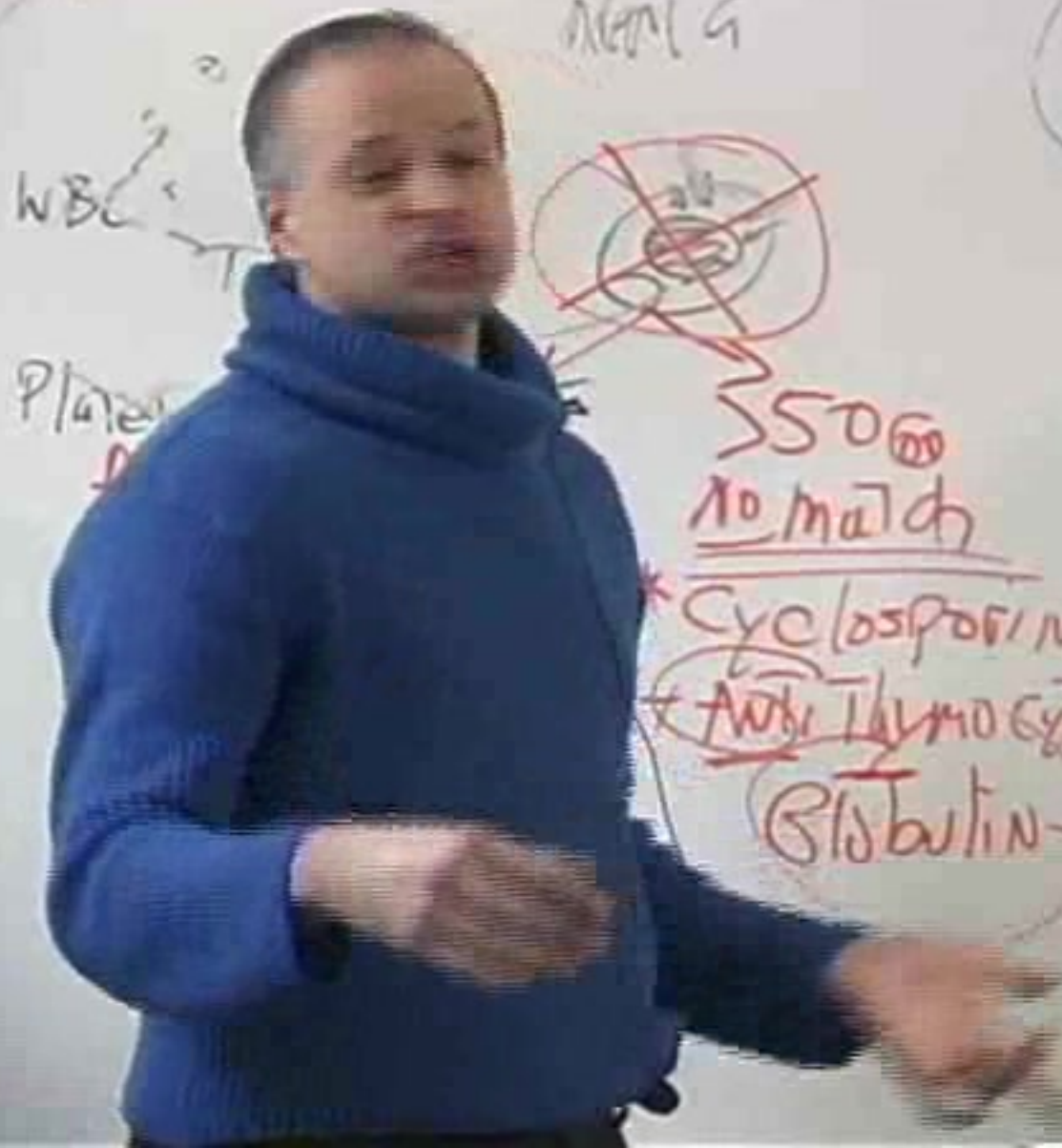
STOR Cell

Vincristine

Adriamycin

Dexamethasone

KAPLAN MEDICAL



WBC

Plasma

T

Plasma

Plasma

Plasma

Plasma

Plasma

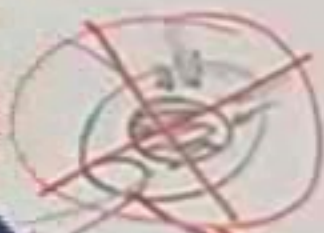
Plasma

Plasma

Plasma

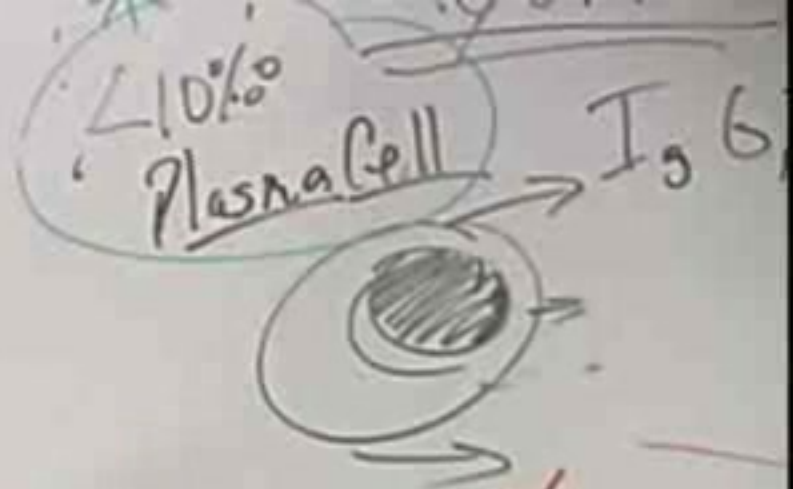
Plasma

Plasma



>5000
No match

* Cyclosporine
* Anti Thymocyte
Globulin



<70

Auto
Stem cell
Dexa

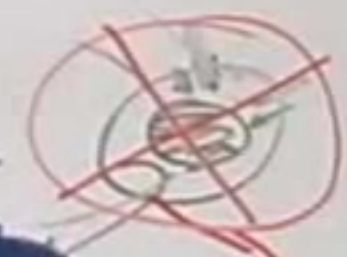
KAPLAN MEDICAL



Highly
Anti G

410%
Plasma

CD11
CD8



5500
No match

Cyclosporine
T lymphocyte
Stimulin

KAPLAN MEDICAL





Aplastic
Anemia

*
10%
Plasma Cell



5000
No match

*
Cyclosporine
Anti Thymocyte
Globulin

<70

Auto
Stroke

KAPLAN MEDICAL

Aplastic
anemia

*
◊ $< 10\%$
◊ Plasma Cell

WBC

Platelet
A

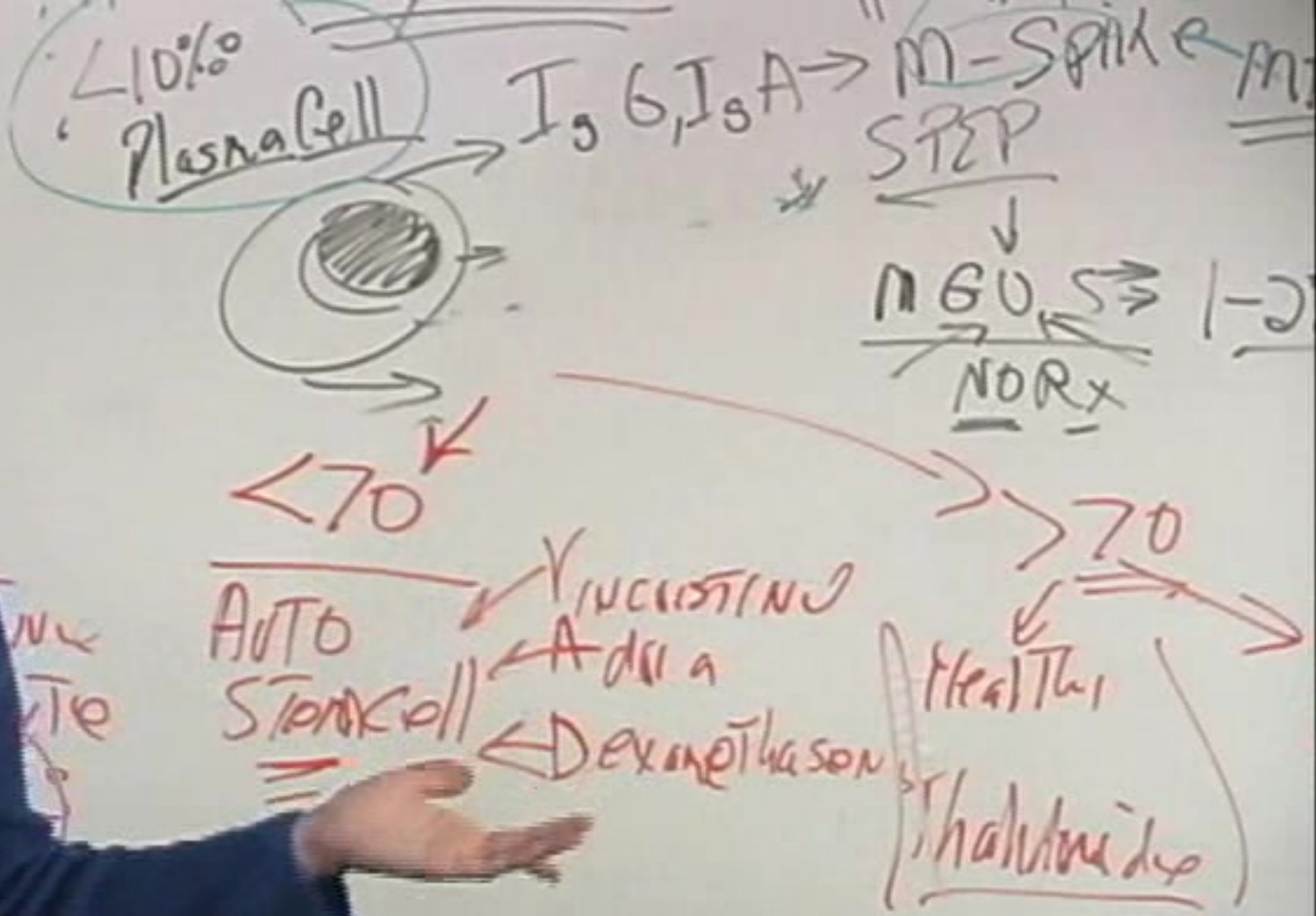
5500
no match

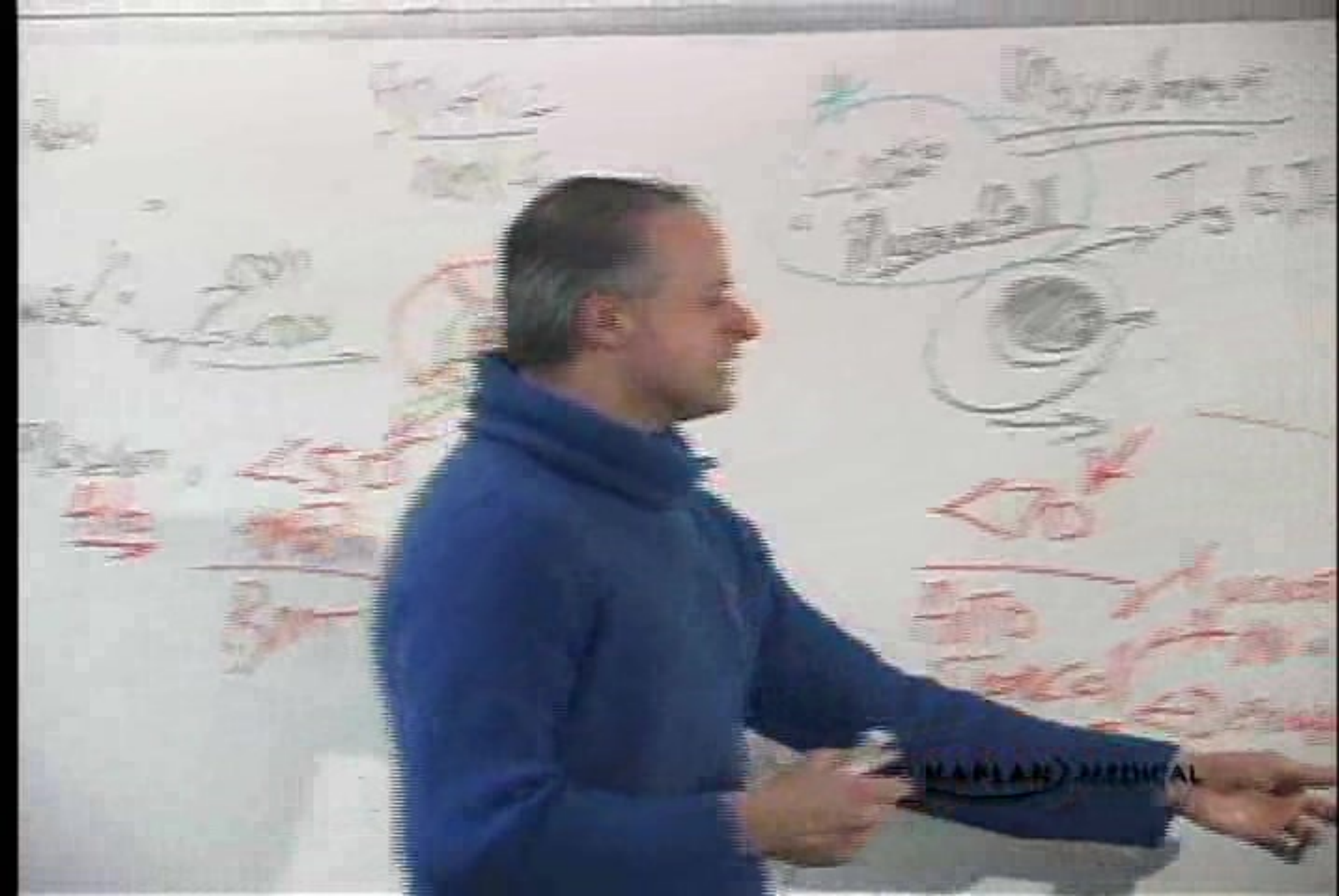
cyclosporine
Anti Thymocyte

Globulin

< 70
Auto
Stroke

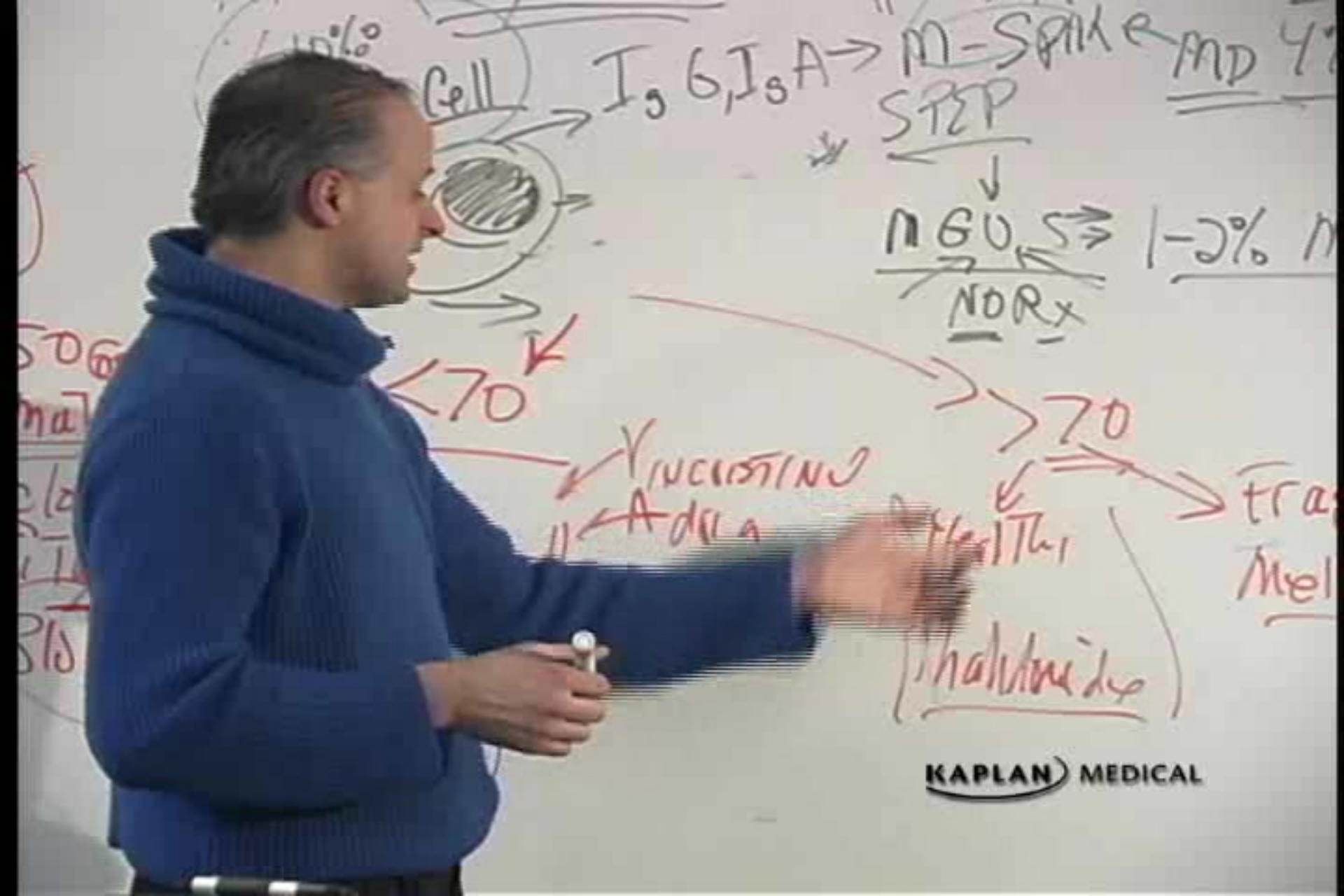
KAPLAN MEDICAL





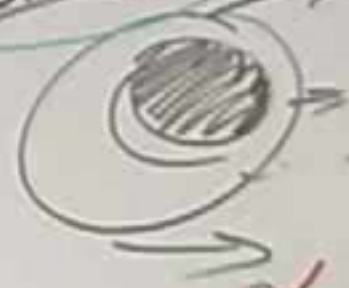
MANAN MEDICAL





Aplastic
Neutropenia

Myeloma
*
◁ 10%
Plasma Cell → IgG, IgA →



◁ 70

Auto
Stomach
Cell → Vincristine
→ Adriamycin
→ Dexamethasone

KAPLAN MEDICAL



KAPLAN MEDICAL

CLL

KAPLAN MEDICAL

CLL

KAPLAN MEDICAL

CLL

KAPLAN MEDICAL

CLL

KAPLAN MEDICAL

CLL

ALL \rightarrow Blasts

CLL → Smear → Normal

ALL → Blasts

CLL → Smeared → NO (Na)

ALL → ?

→ Smear → NO (Na)

→ Blasts

320

NO/Na)

32 ♀ Neck Mass

Not warm, red, Tender

KAPLAN MEDICAL

meat → NO (Na)

ASTs

32 ♀ Neck Mass
NOT Warm, red, Tender
Excision

CLL → Smear → NO (Na)

ALL → B

32

NOT

Exc

KAPLAN MEDICAL

CLL \rightarrow Smear \rightarrow NO (Na)

ALL

32
NOT
Ex

KAPLAN MEDICAL

CLL → Smeared → NO (Na)

→ 12 5

32

NOT U

Exc

LL \rightarrow Smeared \rightarrow NO/NA

LL \rightarrow blasts

32 ♀ Neck Mass
NOT warm, red, tender
Excisional Biopsy

CLL → Smeat → NO(Na)

ALL

32 ♀ Neck M
NO Warm, red
→ Excisional B

⇒ NO(Na)

32 ♀ Neck Mass
NO Warm, red, Tender
⇒ Excisional Biopsy

near \rightarrow NO/Na)

STS

32 ♀ Neck Mass

NOT Warm, red, Tender

Excisional Biopsy

CLL → Smear → NO/NA

ALL → Blasts

Stage

32 ♀ Neck M
NOT warm, red,
→ Excisional B

CLL → Smear → Normal

ALL → Blasts

Stage
Radiate { I
II
III
IV

CLL → Smear → NO/NA

Blasts

re } I
II

CLL \rightarrow Smeared \rightarrow NO (NA)

ALL \rightarrow B

Stage
Radiate

Chem

32
NO
 \rightarrow C

CLL → Smear → NO/NA

ALL → Blasts

Stage { I
Radiate { II

Chemo { III
IV

KAPLAN MEDICAL

CLL → Smear → NO (Na)

AL

Stag

0.1

32 ♀
NOT w
→ Exc

KAPLAN MEDICAL

CLL → Smear → NO (Na)

ALL → Blast

Stage
+ 10

32 ♀
NOT w
→ Exc

CLL → Smear → NO (Na)

ALL → Blas

Stage
1-4

32 ♀
NOT w
→ Exc

CUL \rightarrow Strep \rightarrow NO/A

ALL

Strep

22

NOT W

\rightarrow CXC

KAPLAN MEDICAL

Neck Mass

m, red, Tender

ova / Bro



Neck Mass

m, red, tender

DNV



CLL → Smear → NO (Na)

→ Blasts

re } I
II

KAPLAN MEDICAL

CLL → Smear → NO (Na)

L → Blasts

Stage
Radiate { I
II

hemo { III
IV

ALL
ALL \rightarrow Blasts

Stage

III

Stage \overline{C} B'

KAPLAN MEDICAL

CLL → Smear → NO/NA

Blasts

Stage { I
II

III

IV

ANY stage c' B' symptoms

KAPLAN MEDICAL

CLL → Smear → NO/Na

ALL → Blasts

Stage
diagnose { I
II

Chemo { III

IV

Any stage c' B'sym?

KAPLAN MEDICAL

CLL → MEAT → NOIR

→ Blasts

→ I

→ Symptoms

KAPLAN MEDICAL

CLL \rightarrow MEAL > NON

L \rightarrow Blasts

Stage Indicate { I - ONE
II

IV
ANY stage c'

KAPLAN MEDICAL

CLL → Mean → None

→ Blasts

Radiate { I_a - ONE group

II_a Two groups

III Both sides,
of D

IV

Stage C' B' symptoms

KAPLAN MEDICAL

CLL → MEAL & NO

ALL → Blasts

Stage
Radiate { I_a - ONE 6
II_a Two

Chemo { III Bot
of D₁
IV
ANY STAGE

KAPLAN MEDICAL

CLL \Rightarrow Mean \rightarrow Non

ALL \Rightarrow Blasts

Stage $\left\{ \begin{array}{l} \text{I}_a \text{ - ONE GROUP} \\ \text{II}_a \text{ Two groups} \end{array} \right.$

Chemo

$\left\{ \begin{array}{l} \text{III Both side,} \\ \text{of Diaphragm.} \end{array} \right.$

$\left\{ \begin{array}{l} \text{IV} \\ \text{Any stage c' B' s/sympT}$

KAPLAN MEDICAL

CLL → Smeared → NO/NAI

AL

Stage → ONE GROUP

SO ♀
NOT w
→ EXCI

EXPLANATIONS
KAPLAN MEDICAL

CLL \rightarrow Smeared \rightarrow NO (Na)

ALL

Stage Ia - ONE GROUP

32 ♀
NOT w
 \rightarrow EXCI

KAPLAN MEDICAL

2011

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

555

KAPLAN MEDICAL

Smear → NO/NA

32 ♀ Neck Mass
NOT WARM, red, Tender
→ Excisional Biopsy
Chest, Abd, Pelvic CT

ONE Group

Group 1

C B S Y M P T O N S

CLL → Smear → No (Na)

ALL →

Stage - ONE group

GROUP 1

side,
phagm.

ST - 'B' symptoms

KAPLAN MEDICAL

So

NOT

→ Ex

che

Bone

CLL → Smeared → NO/NA

ALL →

Stage I - ONE GROUP

32 ♀ Ne

NOT L

EST, Abd

ONE Marrow

lysis,
lymphoma.

ne c' B's/AT (KAPLAN) MEDICAL

CLL → Smear → NO/NA

ALL

Stages - ONE Group

HD

32 ♀ M

NOT warm

→ Excision

Chest, Ab

Bone Marrow

Both side,
of Diaphragm.

100% B's/AT 1045

KAPLAN MEDICAL

CLL \rightarrow Smear \rightarrow NO/NA

HD

ALL \rightarrow Blasts

Heart \rightarrow Adria
B

Stage
Radiate { I - ONE GROUP V
D
II - Two groups

III - side,
diaphragm.

IV

ANY STAGE \rightarrow ESCAPATIONS

KAPLAN MEDICAL

32

NOT

\rightarrow Ex

Chem

Bone

CLL \rightarrow Smear \rightarrow NO/NA

ALL

Stag

-ONE GROUP

HD

Heart \rightarrow Adria

B Leom

32

NOT

\rightarrow Ex

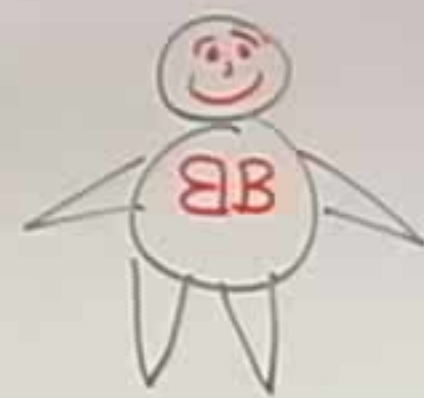
Cher

Some

KAPLAN MEDICAL

Tag c' 15/11/18

2 ♀ Neck Mass
warm & tender
excisional biopsy
AST, Abx & CT
Mass



CLL \rightarrow Smear \rightarrow NO (Na)

HD

32

NOT

A \rightarrow TS

Heart \rightarrow Adria

Lungs \rightarrow B Leomycin

\rightarrow Ex

Cher

Bone

Ia - ONE GROUP V
D

Two groups

Ortho side,
Diaphragm.

KAPLAN MEDICAL

BS SYM 1045

CLL → Smear → NO (Na)

HD

32

NOT

CLL → Blasts

Heart → Adria

Lungs → Leomycin

→ Ex

Ch

Bone

Stage

Radial

I - ONE

Two groups

III Both side,
of Diaphragm.

IV

ANY stage c' IS symptoms

KAPLAN MEDICAL

CLL → Smear → NO/NA

HD

32 ♀
NOT wa

L → Blasts

Heart → Adria

Lungs → B Leomycin

→ Excise
Chest
Bone Marrow

Radiate

I - ONE GROUP
I_a > 95%
D

I Two groups

ST Both sides,
of Diaphragm.

ANY stage c' B SYMPTOMS

KAPLAN MEDICAL

CLL → Smear → NO/NA | Stages

32

ALLs

Heart → Ad

NOT

Lungs → Doxomycin → Ex

Ch

Bone

I - ONE group

GROUPS

Both sides,
of Diaphragm.

(KAPLAN) MEDICAL

Tge c' IS SYMPTOMS

CLL \rightarrow Smeared \rightarrow NO/NA (Sweet's HD)

L \rightarrow Blasts

Heart \rightarrow Adria
Lungs \rightarrow B Leon

Stage

I - ONE GROUP
 $> 95\%$

II - Two groups

III Both sides,
of Diaphragm.

KAPLAN MEDICAL

Stage C B SYMPT

C11 \rightarrow Smeat \rightarrow NO/NA (Stool H
HD)

Heart \rightarrow Adria
Lungs \rightarrow B Leon

Ia - ONE GROUP
> 95%
V
D

Two groups
Both side,
Diaphragm.

KAPLAN MEDICAL

ANY e c B SYMPT

CLL \rightarrow Smear \rightarrow NO/A Sto I/II 80-90%
HD

ALL \rightarrow Blasts

Heart \rightarrow Adri a

Lungs \rightarrow B Leomycin

Stage
Anatomic

I - ONE GROUP
I_a $>95\%$ N
D

II_a Two groups

III Both sides,
of Diaphragm.

IV

ANY STAGE C B SYMPTOMS

KAPLAN MEDICAL

CLL → Smear → NO/NA | StoT/II 80-90%
HD

AL...
Heart → Adria
Lungs → B Leomycin

I - ONE GROUP
I_a > 95%

N
D

II - Two groups

h side,
aphragm.

KAPLAN MEDICAL
E B SYMPTOMS

CLL → Smear → NO/NA

Stages I/II 80-90%

HD

ALL → Blasts

Heart → Adria

Lungs → B Leomycin

Not w

→ Exc

Chest

Bone M

Stage
Radiate

Ia - ONE GROUP
> 95%

IIa Two groups

III Both sides,
of Diaphragm.

IV

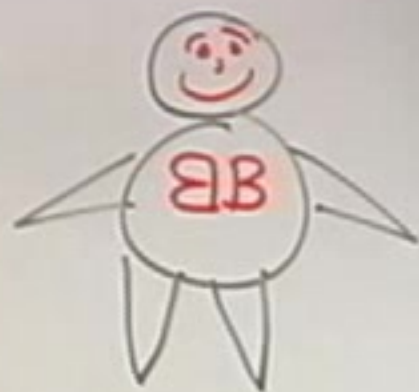
ANY stage c' B symptoms

KAPLAN MEDICAL

32 ♀ Neck Mass
Not wred, Tender
Exc B ROPSY
Chest CT
No CT

NHL

Stage III



CLL \rightarrow Smeared \rightarrow Normal (Stages)

ALL \rightarrow Blasts

Heart \rightarrow Ad
Lungs \rightarrow Bl

Stage { I_a - ONE GROUP
 > 95% N D

II_a Two groups

III Both sides
of Diaphragm.

IV
KAPLAN MEDICAL
by stage c B's

NO/NA) Stages III 80-90%
HD

32 ♀ Neck Mass

NHL

Heart → Adria

Warm, red, Tender

Stage III

80-90%

Lungs → B Leom

Cisional Biopsy

- ONE Group
→ 95%

ST, Abd, Pelvic CT

Marrow

Two Group

Both sides
of Diaphragm

Stage C

Stage III 80-90%

HD

Adria

Leomycin

N
D

o,
sym.

Symptoms

32 ♀ Neck Mass

Not warm, tender

Excisional biopsy

Chest

Bone m

CT

NHL

Stage III or IV
80-90%

Cycle

H
O
P

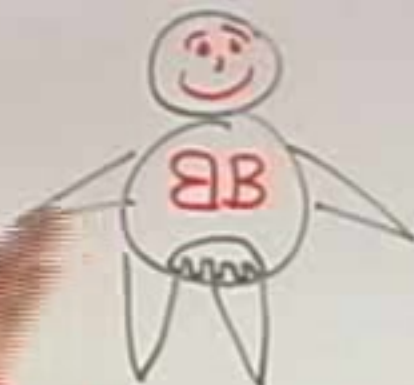
♀ Neck Mass

NHL

Stage III or IV

80-90%

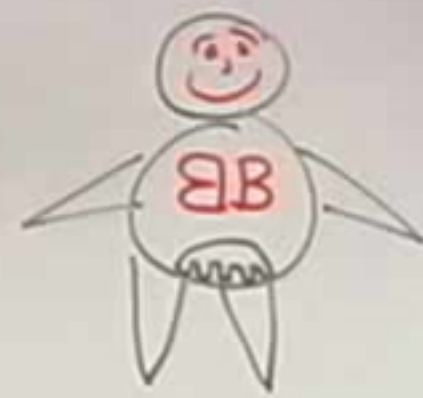
Cyclophosphamide



KAPLAN MEDICAL

32 ♀ Neck Mass
Not painful, red, tender
Biopsy
Reluc CT
row

NHL
Stage III or IV
80-90%



Cyclophosphamide
H-Adriamycin
OP

Stage III 80-90%

HD

32 ♀ Neck Mass

NOT warm, red, tender

Excisional Biopsy

chest, abd, pelvic CT

Marrow

NHL

Stage III or IV

80-90%

Cyclophosphamide

H-Adriamycin

O

P

CLL → Smear → NO/NA

StoT/II 80-90%

HD

32 ♀ M

NOT warm

ALL → Blasts

→ Adria

→ B Leomycin

→ Excision

Chest, Ab

Mar

Stage
Radiate



Vinblastine

D

Chem

KAPLAN MEDICAL

SYMPTOMS

CULTURE

Small Business

29 Jan

THE

Figure 1

100

2000

一版

15

[illegible]

1. $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$

KAPLAN) MEDICAL

CLL \rightarrow Smear \rightarrow NO/NA | Sto I H 80-90% HD 32 ♀ Ne

NOT warm,

\rightarrow Blasts

Heart \rightarrow Adria

Lungs \rightarrow B Leomycin

\rightarrow Excision

Chest, Abd

Bone Marrow

ONE GROUP
 $> 95\%$

Vinblastine

D

R

III Both side,
of Diaphragm.

IV

ANY stage c' B' symptoms

KAPLAN MEDICAL

CLL → Smear → NO/NA

Stro I HI 80-90%

HD

32 ♀ M

NOT warm

Heart → Adria

Lungs → B Leomycin

→ Excision

Chest, Ab

Bone Marrow

I - ONE GROUP
→ 95%

Vinblastine
D

II - Two groups

III Both sides,
of Diaphragm.

IV

Stage C B's symptoms

KAPLAN MEDICAL

CLL → Smear → NO/NA

Sto I HI 80-90%

HD

32 ♀

NOT wa

LL → Blasts

Heart → Adria

Lungs → B Leomycin

→ Excis

Chest,

Bone Ma

Stage
Radiate

Ia - ONE GROUP
> 95%

Vinblastine
D

IIa Two groups

Chemo

soxhido,
Diaphragm.

IV

ANY STAGE c' B' symptoms

KAPLAN MEDICAL

CLL \rightarrow Smear \rightarrow NO/A) StroTH 80-90%
HD

ALL \rightarrow Heart \rightarrow Adria
Lungs \rightarrow B Leomycin \rightarrow
- ONE GROUP \rightarrow Vinblastine
 \rightarrow 95% D

Two groups

Both sides,
Diaphragm.

KARLAN MEDICAL

ANY \rightarrow C B symptoms

Heart → NO/NA

Stress I/II 80-90%
HD

32 ♀ Neck Mass

NOT warm, red, tender

Excisional Biopsy

Chest, Abd, Pelvic CT

Marrow

STP

U/A

U&P

STS

Heart

I - ONE 6
Ia > 95%

II

CLL → Smear → NO (Na) | Sto T HI 80-90%
HD

ALL → Heart → Adria

Lungs → B Leomycin

Stage → ONE GROUP
> 95%

Vinblastine
D

Two groups

Both side,
Diaphragm.

32 ♀ Neck
NOT warm, red

→ Excisional
Chest, Abd, Re
Bone Marrow

LFTs STP
CBC ULP
UEP

AP Tbx 5

CLL \rightarrow Smear \rightarrow NO/Ae Stro I HT
HD

LL \rightarrow Blasts

Heart \rightarrow Adria
Lungs \rightarrow B Leom

Tiger

Radix

I - ONE group
 $> 95\%$

Vinblastine
D

II - Two groups

III Both sides,
of Diaphragm.

IV KAPLAN MEDICAL

Any side c B 3/4/10

CLL \rightarrow Smear \rightarrow NO/NA

Stress HI 80-90%

HD

32 ♀

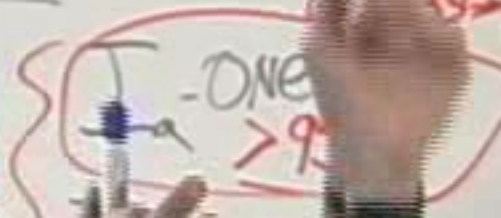
NOT WARN

Blasts

flex \rightarrow Adria

\rightarrow Bleomycin

\rightarrow Excision



VINBLASTIN

D

Chest, A

Bone Mar

Two groups

side

phagm.

IV

Any stage c' B's symptoms

KAPLAN MEDICAL

CLL \rightarrow Smear \rightarrow NO (A*) Swollen HT 80-100 22 ♀ Neck
HD NOT WARM, fe

AL 5 Heart \rightarrow Adria Lungs \rightarrow B Leomycin \rightarrow Excisional
Sto I - ONE 600? Vinblastine Chest, abd,
> 95% D Bone Marrow

II Two 600?

Ortho sido,
Diaphragm.

1% /year \rightarrow

KAPLAN MEDICAL

IV 1 B 3/4 100%

CLL → Smear → NO (Na)

Sto I HI 80-90%
HD

32 ♀ Neck M
NOT warm, red,

Blasts

Heart → Adria

Lungs → B Leomycin

→ Excisional B

I - ONE GROUP
→ 95%

Vinblastine
D

Chest, Abd, Peri

Bone Marrow

Two groups

1% / year → lev

of Diaphragm.

Type C B's symptoms

KAPLAN MEDICAL

CLL \rightarrow Smear \rightarrow NO/NA

StoT/II 80-90%

HD

32 ♀

NOT WARR

AL

Heart \rightarrow Adria

Lungs \rightarrow B Leomycin

\rightarrow Excision

Stage

Ia - ONE GROUP
>95%

Vinblastine

D

Chest, A

Bone Mar

GROUP 3

ido,

throm.

1% / year

KAPLAN

MEDICAL

1/ symptoms

CLL \rightarrow Smear \rightarrow NOIHA

StoT/II 80-90%

HD

32 ♀

NOT wa

Heart \rightarrow Adria

Lungs \rightarrow Bleamycin

\rightarrow Excis

Chest,

Bone Mo

I - ONE GROUP
Ia $>95\%$

II

III Both side,
of Diaphragm.

IV

Any stage c' B' symptoms

KAPLAN MEDICAL

♀ Neck Mass NHL

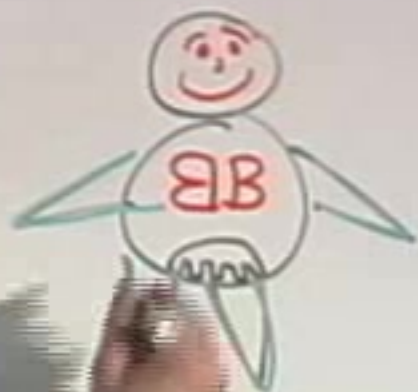
Warm, red, Tender

Cervical Bx 90%

ST, abd, Pelvic C

Marrow

1 year \rightarrow $\frac{1}{A}$



22 ♀ Neck Mass NHL

not warm, red, tender

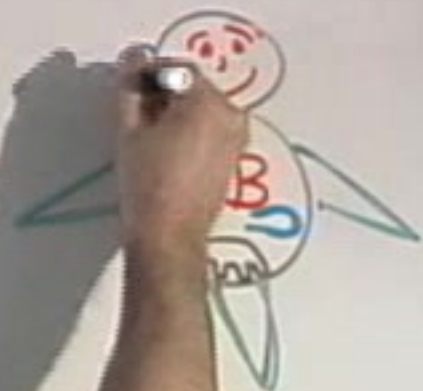
Excisional Biopsy

Chest, Abd, Pelvic CT

Marrow

III or IV
10%

1% / year → low
A



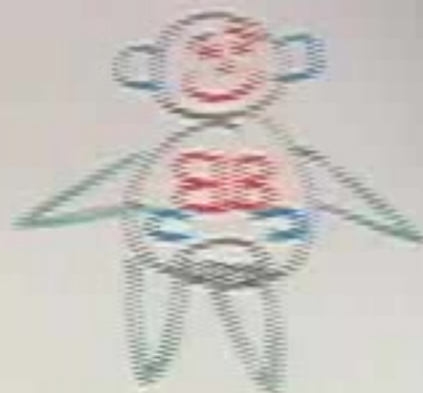
2 q Neck Mass
Not warm, red, tender

Excessive Bp
Chest, abd, renal CT
bone marrow

12 hours later
RA

NHL

Stage III-IV
20-40%



Cyclophosphamide
+ **Adriamycin**
+ Vincristine
+

32 ♀ Neck Mass

Not warm Tender

Excisional biopsy

Chest, Abdomen, CT

Neck Mass

NHL

Stage IIIa

80-90%

Rituximab



Chlorambucil

doxorubicin

P-Vincristine



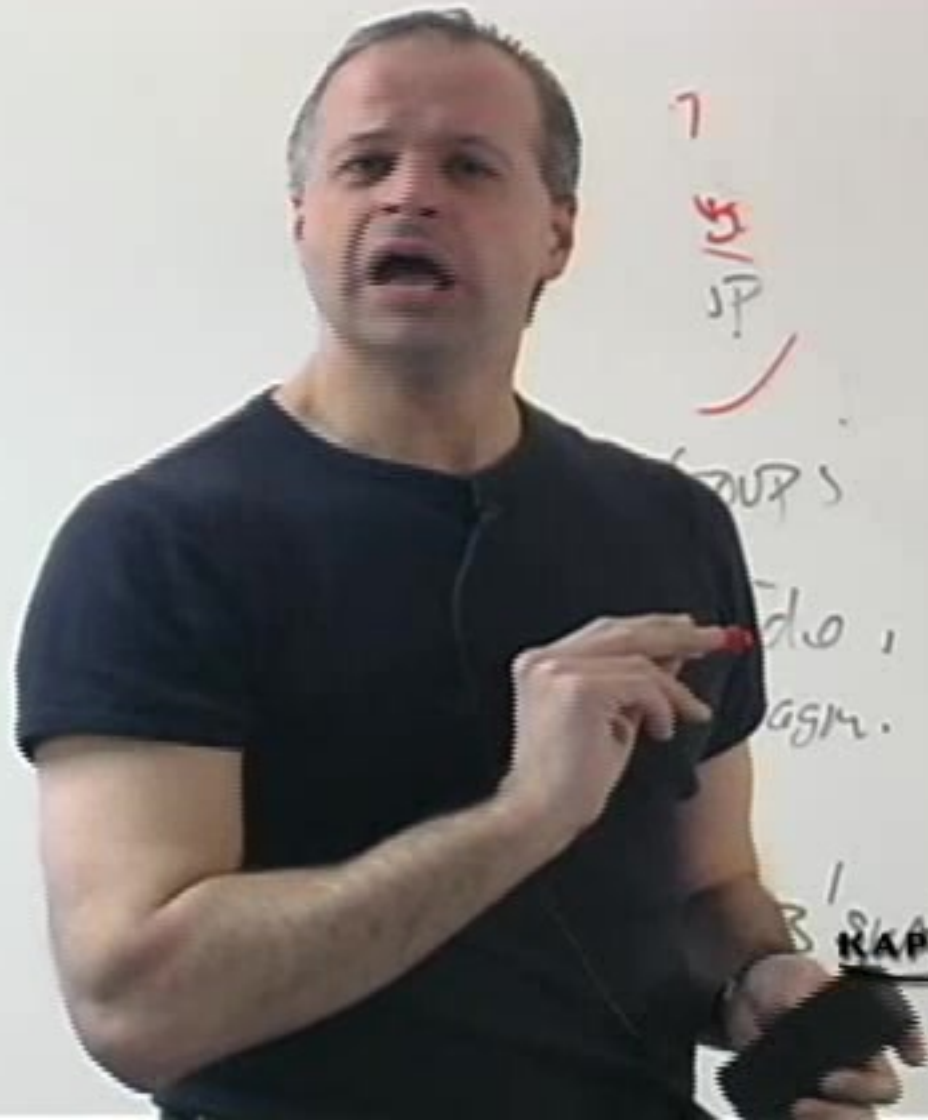
7
5
JP

IIa Two groups

II Both sides of Diaphragm.

IV

KAPLAN MEDICAL B'sy

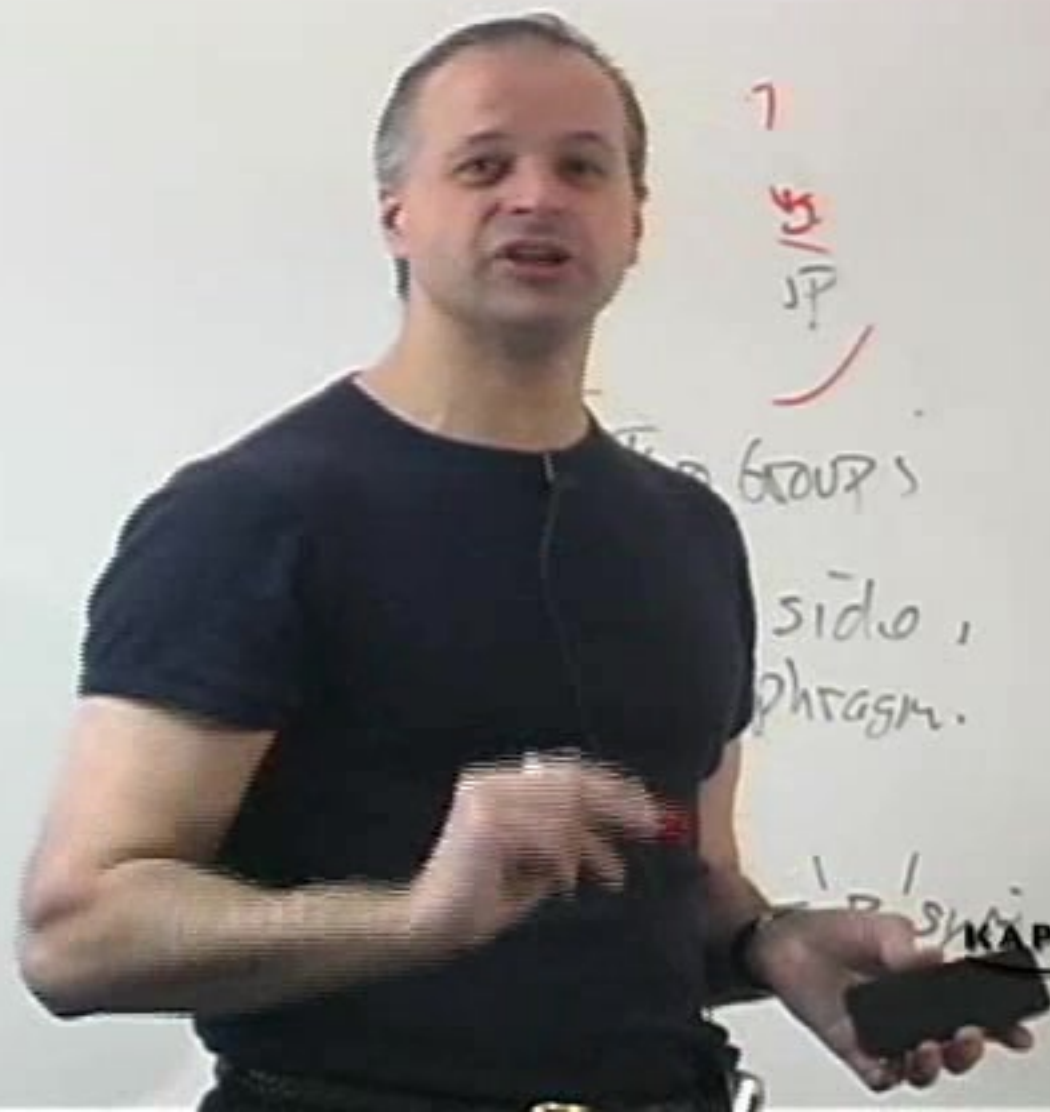


7
5/5
JP
✓

GROUP 3
Edo,
asm.

40% 32 ♀
NOT w
→ Exci
Chest
Bone M
1% /

1
3
KAPLAN MEDICAL



7
5
JP
✓

group's

side,
phragm.

1/5
1/5

KAPLAN MEDICAL

40% 32 ♀

NOT way

→ Excise
N Chest,
Bone Ma

1% / ye

Ia

IIa Two breast

II Both
of breast

IV

Any stage

1
5/10
JP

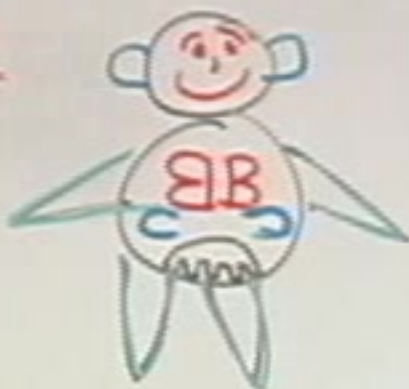
5/10
10

5/10
10

KAPLAN MEDICAL

NHL Rituximab
CD20

Stage III or IV
80-90%




Cyclophosphamide
H-Adriamycin
O-VINCristine
P

7
5
JP
Pa
IIa
III
IV
V

KAPLAN MEDICAL



KAPLAN MEDICAL



KAPLAN MEDICAL

22 ♀

220 ED
+
SPISTAXIS / Potech

22 ♀ ED

• Spistaxis / Petechiae

PT: Normal (R)

22 ♀ ED

• Spontaneous/Petechiae

PT: Normal (12)

aPTT: ↑↑ 58 second,

Platelets:

220 ED

• Spontaneous/Potential

PT: Normal (R)

aPTT: ↑↑ 58 seconds

Platelets: 227,000

220 ED

• Spontaneous / Petechiae

PT: Normal (R)

aPTT: ↑↑ 58 seconds

Platelets: 227,000

Platelet

SKIN

EP

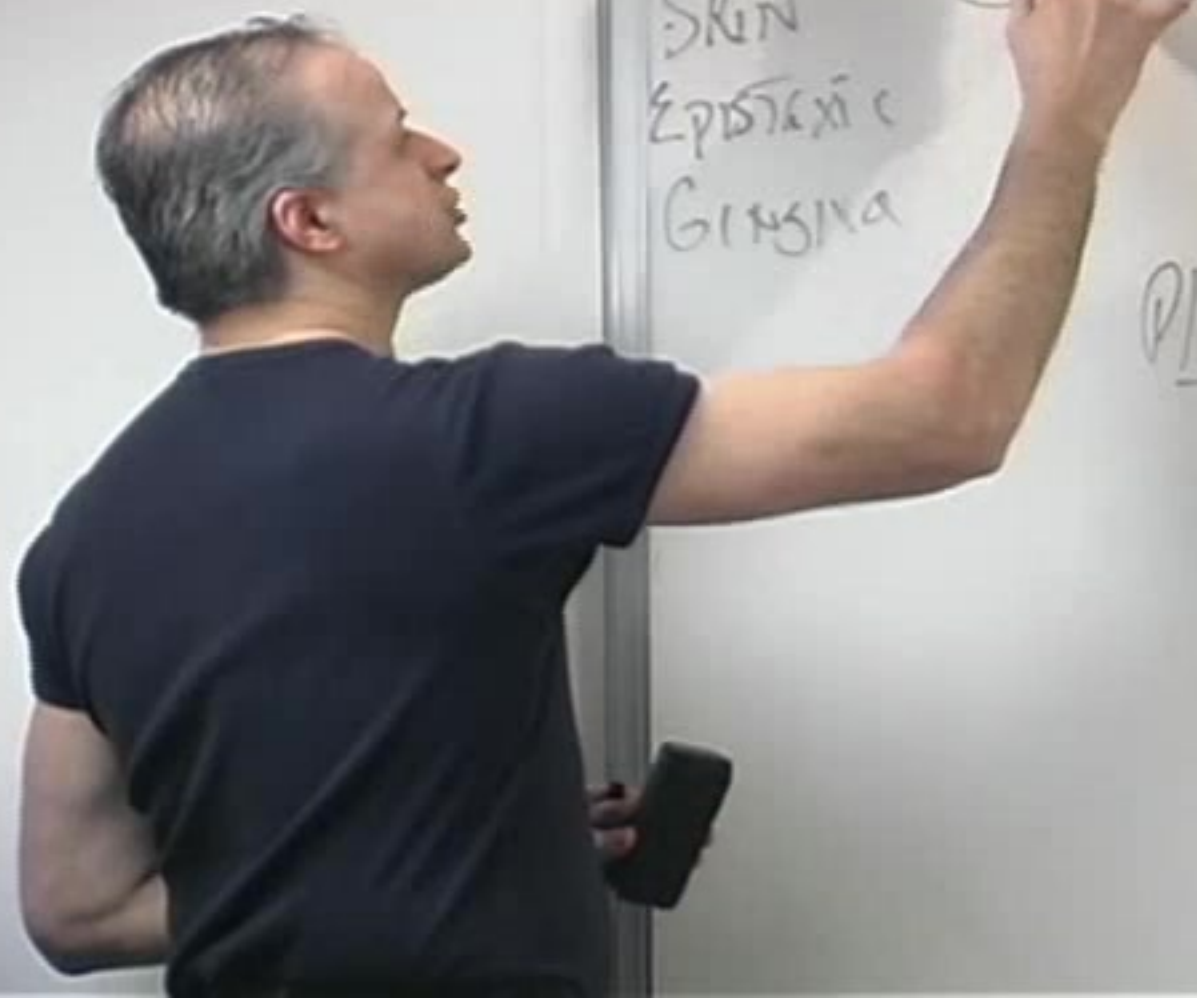
220 ED

• Spontaneous/Petechiae

PT: Normal (12)

aPTT: ↑↑ 58 seconds

Platelets: 227,000



Platelet / πλάτ

SKIN
ΕΡΙΣΤΑΞΙΣ
ΓΙΝΓΙΒΑ

220 ED
♀

· ΣΠΙΣΤΑΞΙΣ / ΡΕΤΕΝ

PT: Normal (R)

aPTT: ↑↑ 58 sec

Platelets: 227,0



KAPLAN MEDICAL

Platelet / factor

220 ED

Skin

JOINT

• Spontaneous / Petechiae

Spontaneous

Muscles

: Normal (R)

Thrombocytopenia

PT: ↑↑ 58 second

PLT

PLTS: 227,000

Platelet Factor

SKIN JOINT
Muscles

Epistaxis
Gingiva

220 ED

• Spontaneous/Petechiae

PT: Normal (12)

aPTT: ↑↑ 58 second,

Platelets: 227,000

Platelet

Factor

220 ED

SKIN

ADULT

• Epistaxis/Petechiae

Epistaxis

Gingiva

PT: Normal (12)

aPTT: ↑↑ 58 second,

Platelets: 227,000

Platelet

Factor

220 ED

JOINT

• Spontaneous/Petechiae

Muscles

PT: Normal (R)

aPTT: ↑↑ 58 second,

Platelets: 227,000



Platelet

Factor

22 ♂ ED

SKIN

JOINT

• Spontaneous/Petech

Epistaxis

Muscles

Gingiva

• Hematoma (R)

a: ↑↑ 58 sec

(Pl) eTS: 227,000

20' ED

STAXIS/PeTech

Normal (R)

↑↑ 58 sec

227,00

KAPLAN MEDICAL

♂ ED

axis / PeTech

trial (R)

↑ 58 seconds

227,000

22 ♀ epistaxis

Pt: 12

aPTT: 38

Platelet

Factor

22 ♂ ED

SKIN

JOINT

• Epistaxis / Petechiae

Muscles

PT: Normal (R)

aPTT: ↑↑ 58 second,

Platelets: 227,000

22 ♂ ED

Spistaxis / Potch...

PT: Normal (12)

PT: ↑↑ 58 sec

PltS: 227,000

22 ♀ Spistaxis

Health

PT: 12

aPTT: 24

Platlets 200,000

2 ♂ ED

axis / Petechiae

renal
↑

22

22 ♀ Epistaxis
Petechiae

Health

PT: 12

aPTT: 24

Platelets 27,000



Platelet factor

SKIN JOINT
Epistaxis Muscles

Gingiva
GT
GU
CNS

22 ♂ ED

• Epistaxis/Petechiae

PT: Normal (12)

aPTT: ↑↑ 58 second

Platelets: 227,000

Platelet Factor
JOINT
Muscles

22 ♂ ED

• SPONTANEOUS / PETECHIAE

PT: Normal (12)

aPTT: ↑↑ 58 seconds

Platelets: 227,000

GT
GU
CNS

22 ♀ Epistaxis
Petechiae

Healthy
VT: 12

RTT: 24

Platelets 2700

ITP

22 ♀ Epistaxis
Healthy Petechiae
PT: 12
aPTT: 24
Platelets 210

IT

IT

22 ♀ Epistaxis
Petechiae
Healthy
12

27,000

KAPLAN MEDICAL

22 ♂ ED

Spistaxys / Schizae

PT: Normal

TT: ↑

Platelets: 2000

22 ♀ Spistaxys
Petechiae

Healthy

PT: 12

aPTT: 24

Platelets 27,000

22 ♂ ED

Spistaxys / Spichae

PT: Normal

TT: ↑

Platelets: 2000

22 ♀ Spistaxys
Petechiae

Healthy

PT: 12

aPTT: 24

Platelets 27,000

22 ♂ ED

Spistaxys / Spichae

PT: Normal

TT: ↑

Platelets: 2000

22 ♀ Spistaxys
Petechiae

Healthy

PT: 12

aPTT: 24

Platelets 27,000

22 ♂ ED

Spistaxys / Schizae

PT: Normal

TT: ↑

Platelets: 2000

22 ♀ Spistaxys
Petechiae

Healthy

PT: 12

aPTT: 24

Platelets 27,000

22 ♂ ED

SPASTAXYL 12 chiae

Pr: Nor

TT: ↑

ETS: 2000

22 ♀ 2/27/2015
Healthy
VVT 12
PETECHE

APP: 24

Platelets 27,000

22.05.21

SPASTIC PARALYSIS

Pr: Normal

TT: ↑

ETS: 2

22.05.21
Therapy
PTT

27.05.21
Therapy
27.05.21

2205 'EVI

Σημειώσεις

Κτ:

Π: ↑

Π: ↓

Π: ↓

Π: ↓

Π: ↓

REPLACEMENT